

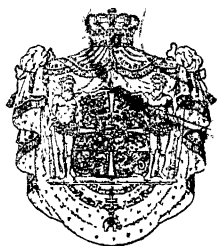
DENMARK 1937



# D E N M A R K

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C O P E N H A G E N 1 9 3 7

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# TABLE OF CONTENTS

	Page
<b>I.</b>	
THE ROYAL FAMILY.....	11
LAND AND PEOPLE.....	14
Physical Features, Climate, etc.....	14
Population.....	16
THE CONSTITUTION.....	21
Parliament .....	24
The Kingdom of Iceland .....	26
THE ADMINISTRATION.....	27
Local Government .....	28
Administration of Justice.....	30
National Defence .....	31
Diplomatic and Consular Service .....	32
The Church .....	43
EDUCATION .....	45
The Elementary School.....	45
The University .....	46
Technical Education.....	48
Agricultural Colleges .....	48
Commercial Training.....	49
Other Educational Establishments.....	49
Popular Adult Education.....	50
Facilities for Foreign Students .....	52
PUBLIC FINANCE.....	54
The State.....	54
Revenue and Expenditure .....	56
Capital Account .....	60
State Assets and Liabilities.....	61
Local Government .....	61
Local Government Accounts .....	62
Capital Account, Assets and Liabilities .....	64
AGRICULTURE .....	65
The Agricultural Area.....	65
Utilization of the Agricultural Area .....	68

	Page
Live Stock.....	70
The Crops .....	71
Agricultural Production.....	74
Co-operation in Agriculture .....	75
Societies for the Promotion of Agriculture in General.....	76
Breeding Societies and Control Societies .....	76
Agricultural Co-operative Enterprises .....	78
The Co-operative Dairies .....	78
Co-operative Bacon Factories .....	80
Co-operative Egg Exporting .....	80
Co-operative Poultry Slaughteries .....	81
Cattle Exporting Societies .....	81
Danish Agricultural Societies' Seed Supplies.....	82
Purchasing Societies.....	82
THE FISHERIES.....	84
The Fishing Industry of the Faroe Islands.....	91
The Greenland Fisheries.....	92
HANDICRAFTS AND INDUSTRY.....	93
TRADE .....	101
Home Trade .....	101
Foreign Trade.....	102
The Tariff.....	102
Imports and Exports.....	103
Brokers, Weighing and Measuring .....	109
FINANCIAL INSTITUTIONS .....	111
Banks .....	111
The Savings Banks .....	113
Mortgage Institutions .....	115
The Copenhagen Stock Exchange.....	116
Insurance Companies.....	118
Joint Stock Companies.....	120
SHIPPING.....	122
The Mercantile Marine .....	123
Shipping between Danish Ports .....	125
Shipping between Danish and Foreign Ports .....	126
Danish Ships in Foreign Trade.....	127
Gross Earnings from Foreign Shipping Freights.....	127
The Principal Foreign Services Run by Danish Shipowners.....	128
COMMUNICATIONS.....	131
The Ports.....	131
Railways and Ferries.....	133
Automobile Services, Air Traffic, etc.....	135
Post, Telegraph and Telephone.....	136
SOCIAL CONDITIONS .....	138
Protection of Workers.....	139
Workmen and Employers.....	141

	Page
Sanitation, Child Welfare, Housing, etc. . . . .	143
Temperance Legislation . . . . .	144
Accident Insurance . . . . .	145
Unemployment Insurance . . . . .	145
National Insurance . . . . .	147
Public Assistance . . . . .	151
The Government Immigration Office . . . . .	153
MUSEUMS AND SCIENTIFIC INSTITUTIONS . . . . .	156
Archaeological and Historical Collections . . . . .	156
Art Galleries . . . . .	160
Libraries and Archives . . . . .	166
Scientific Societies and Foundations . . . . .	168
ECONOMIC AND FINANCIAL CONDITIONS IN 1936 . . . . .	170
LITERATURE FOR CONSULTATION . . . . .	176

## II.

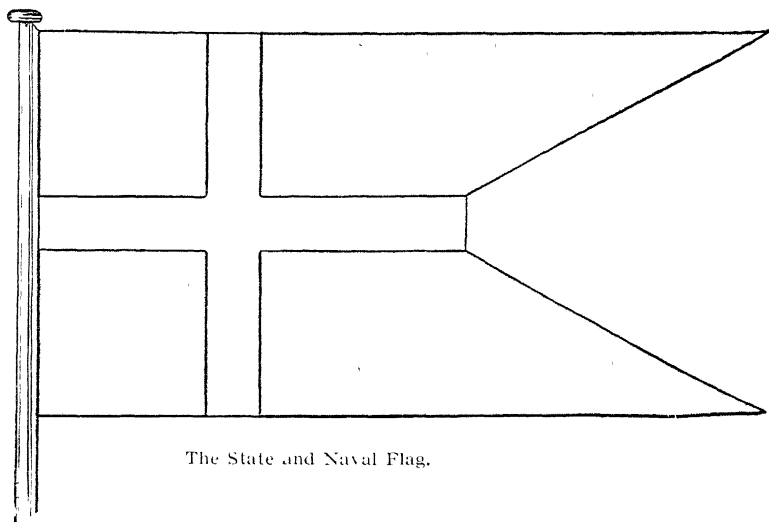
LEADING DANISH INSTITUTES OF NATURAL SCIENCE..	197
THE NATIONAL HEALTH SERVICE . . . . .	216
THE HOSPITAL SYSTEM IN DENMARK . . . . .	223
PHARMACIES IN DENMARK . . . . .	231
RECREATION IN DENMARK . . . . .	238

## III.

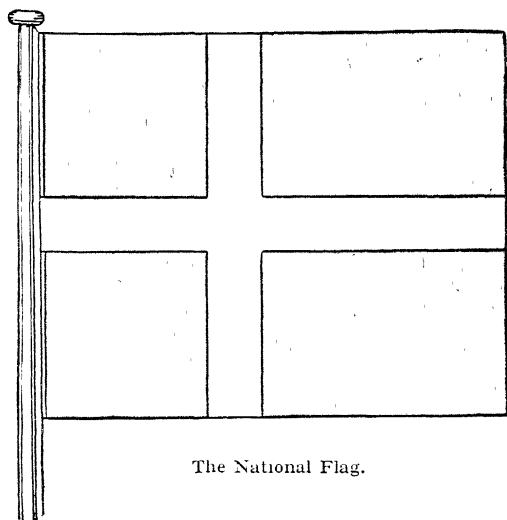
CONTROL OF EXPORT OF AGRICULTURAL PRODUCE...	271
CORRELATION BETWEEN DANISH AGRICULTURE AND INDUSTRY . . . . .	289
ECONOMIC AND TRADE INFORMATION FACILITIES IN DENMARK . . . . .	298
THE PRINCIPAL DANISH EXPORT COMMODITIES . . . . .	313
SPECIAL INFORMATION CONCERNING DANISH EXPORT COMMODITIES . . . . .	327
APPENDIX: DENMARK . . . . .	MAP
—    DANISH SHIPPING LINES . . . . .	MAP



## THE DANISH COLOURS



The State and Naval Flag.



The National Flag.



H. M. KING CHRISTIAN X

*Elfelt phot.*



H. M. QUEEN ALEXANDRINE

*Elfelt phot.*



H. R. H. CROWN PRINCESS INGRID

*Jaeger phot.*





H. R. H. CROWN PRINCE FREDERIK

*Elfelt phot.*



I.



## THE ROYAL FAMILY

---

His Majesty King *CHRISTIAN X of Denmark and Iceland*, born September 26, 1870; first son of King Frederik VIII, born June 3, 1843, died May 14, 1912, and Queen Louise, born October 31, 1851, daughter of King Charles XV of Sweden-Norway, married July 28, 1869, died March 20, 1926; succeeded to the Crown on the death of his father; married April 26, 1898,

Her Majesty Queen *ALEXANDRINE*, born December 24, 1879, daughter of the late Grand Duke Friedrich Franz of Mecklenburg-Schwerin.

### SONS:

- (1) His Royal Highness Crown-prince *FREDERIK*, born March 11, 1899; married May 24, 1935. H. R. H. Princess *INGRID*, born March 28, 1910, daughter of the Crown-prince Gustaf Adolf of Sweden.
- (2) His Royal Highness Prince *KNUD*, born July 27, 1900, married 8. Septbr. 1933. H. R. H. Princess *CAROLINE-MATHILDE*, born 27. April 1912. Daughter: H. H. Princess *ELISABETH*, born May 8 1935.

### BROTHERS AND SISTERS OF THE KING:

- (1) H. M. King *HAAKON VII* of Norway, born August 3, 1872, married July 22, 1896, Her Majesty Queen *MAUD*, (daughter of King Edward VII of Great Britain & Ireland).
- (2) H. R. H. Prince *HARALD*, born October 8, 1876, married April 28, 1909, H. R. H. Princess *HELENA* (née Princess of Slesvig-Holsten-Sønderborg-Glücksborg). —

*Family: —*

- (1) H. H. Princess FEODORA, b.  $\frac{3}{7}$ , 1910.
- (2) H. H. Princess CAROLINE-MATHILDE, b.  $\frac{27}{4}$ , 1912, married Septbr. 8, 1933, to H. R. H. Prince Knud.
- (3) H. H. Princess ALEXANDRINE-LOUISE, b.  $\frac{12}{12}$ , 1914, married January 22, 1937 to L. A. F. K. Count Castell-Castell.
- (4) H. H. Prince GORM, b.  $\frac{24}{2}$ , 1919.
- (5) H. H. Prince OLUF, b.  $\frac{10}{3}$ , 1923.
- (3) H. R. H. Princess INGEBORG of Sweden, born August 2, 1878, married August 27, 1897, to H. R. H. Prince CARL of Sweden.
- (4) H. R. H. Princess THYRA, born March 14, 1880.
- (5) H. R. H. Prince GUSTAV, born March 4, 1887.
- (6) DAGMAR, born May 23, 1890, married November 23, 1922, to Jørgen Castenskiold, Steward of the Royal Hunt & Gentleman in Waiting.

## BROTHERS AND SISTERS OF THE LATE KING:

- (1) † H. M. Dowager-Queen ALEXANDRA of Great Britain & Ireland (died 1925).
- (2) † H. M. King GEORGE I of Greece (died 1913).
- (3) † H. M. Dowager-Empress DAGMAR of Russia (died 1928).
- (4) † H. R. H. Princess THYRA, Duchess of Cumberland (died 1933).
- (5) H. R. H. Prince VALDEMAR, born October 27, 1858, married October 22, 1885, to H. R. H. Princess MARIE (née Princess of Orléans, died 1909). — *Family: —*
  - (1) H. H. Prince AAGE, Count of Rosenborg, b. June 10, 1887, married H. H. Princess Aage, Countess of Rosenborg (née Mathilde, Countess Calvi di Bergolo), January 17, 1914. —
  - (2) H. R. H. Prince AXEL, b. Aug. 12, 1888, married May 22, 1919, H. R. H. Princess Margareta, daughter of Prince Carl of Sweden. — Sons: H. H. Prince GEORG, b. April 16, 1920. H. H. Prince FLEMMING, b. March 9, 1922.
  - (3) H. H. Prince ERIK, Count of Rosenborg, b. Nov. 8, 1890.

- (4) H. H. Prince VIGGO, Count of Rosenborg,  
b. Dec. 25, 1893, married H. H. Princess Viggo,  
Countess of Rosenborg (née Miss Eleanor Green)  
[June 10, 1924.]
- (5) H. R. H. Princess MARGRETHE, born Sept.  
17, 1895, married June 9, 1921, H. R. H. Prince  
Renatus of Bourbon-Parma.

# LAND AND PEOPLE

## PHYSICAL FEATURES, CLIMATE, ETC.

The Kingdom of Denmark comprises an area of about 44,300 square kilometres, including the Faroe Islands in the Atlantic Ocean, which have an area of about 1,400 square kilometres.

Both in regard to situation and physical features Denmark proper is divided into two natural parts: a) the Peninsula of Jutland, which is attached to the Continent of Europe and measures about 30,000 square kilometres, and b) the Islands, most of which lie in the waters between the peninsulas of Jutland and Scandinavia; the number of islands is about 500, with a total area of about 13,000 square kilometres, although only about a hundred of them are inhabited.

Lakes and ponds occupy about 530 square kilometres of the area of the country, and rivers of more than three metres in width about 70 square kilometres; thus the land area proper is of about 42,300 square kilometres. The distribution of productively utilized areas and other areas is shown by means of the following summary:

	The Islands Sq.Km.	Jutland Sq.Km.	Total Sq.Km.
Agricultural Areas:			
Tilled.....	9,397	17,465	26,862
Permanent grass.....	1,113	4,504	5,617
Total...	10,510	21,969	32,479
Kitchen and pleasure gardens .....	295	275	570
Woodlands and plantations .....	1,347	2,561	3,908
Shelter belts and hedges.....	34	113	147
Bogs.....	101	413	514
Heaths and moors .....	58	2,384	2,442
Dunes, blown-sand, and stone.....	44	463	507
Roads, paths, occupied sites, court- yards, depots, excavated building sites. etc. ....	742	1,018	1,760
Total land area.....	13,131	29,196	42,327
Water area.....	244	360	604
Total...	13,375	29,556	42,931



Thus on the islands that part of the land area that is cultivated (tilled or forest areas) amounts to about 93 per cent., whereas in Jutland it is only about 85 per cent.

The bogs are to some extent utilized for peat extraction, whereas the heaths and the blown-sand areas are unproductive. This blown sand is mostly to be found in Jutland, where on the west coast it forms a continuous line from Blaavand to the Scaw. It is not much more than eighty years ago that the planting of these areas was completed (with *Psamma arenaria* and *Elymus arenarius*) and a stop put to the destructive drifting of the sand. The heaths everywhere are covered with heather (*Calluna vulgaris*). During the past fifty years more than half of these areas have been cultivated — to some extent brought under the plough, but mostly planted with conifers.

Much the greater part of the land area of Denmark — about 90 per cent. — is productive; about 3,250,000 hectares (practically 80 per cent.) are farmed and are dealt with in greater detail in the following. In comparison the other natural resources of the country are of subordinate importance.

The seas, the belts, fjords, etc. surrounding Denmark and giving the country a relatively extensive coastline, are naturally being exploited for fishing and play a great part in the country's communications; harbours have been easy to establish in most places. This, however, does not apply to the long North Sea coast, which is almost inaccessible, at any rate for modern ships, and where the need of fishing ports has been increasingly perceptible; hitherto Esbjerg has been the only west coast port, where a large fishing fleet has its home. Formerly the most northerly Cattegat ports Skagen and Frederikshavn have had to do duty for this lack of west coast ports, a lack that has given birth to several projects for harbour works on that coast, and now one has been completed at Hirtshals (1930) and another at Hvide Sande (1932). The experience that has been brought to bear in the very difficult realization of these schemes has, to a great extent, been gained from the extensive work of protecting the coast (especially the building of breakwaters) which has been necessary at many places along the shores of the North Sea. Coast protection by means of dykes has also been necessary elsewhere in the

country, especially on the islands for the security of low-lying coast lands; many of these works have been in the form of embankments, whereby large tracts of land have been reclaimed for cultivation.

The climate of Denmark is naturally a markedly coast climate, with higher average temperature than many places on the same parallel of latitude. The mean temperature for the whole of the year lies between seven and eight degrees centigrade. The character of a coast climate is also visible in the usually slight difference between day and night temperature, whereas the frequent changes in the direction of the wind, as a consequence of the proximity of the sea, may lead to very considerable differences in temperature from day to day. The most prevailing winds are from the west and south-west, while calm weather for several days at a stretch is of rare occurrence. The average annual rainfall is about 600 mm.

## POPULATION

As far as race is concerned the population is very homogeneous. The Danish people, which is of the Gotho-Germanic race, has lived in the country since prehistoric times, and the language spoken is Danish everywhere, although there are dialects, especially Jutlandic as compared with "Island" Danish.

As far as population is concerned, Denmark cannot be compared with the thickly populated industrial districts in other parts of Europe. Nevertheless, it is a relatively densely populated country. The total number at the present time is about 3,737,000, which gives an average of about 87 per square kilometre.

There is great variation in the density of population in the country, partly as a consequence of the role played by the town populations in the various districts, and partly according to the fertility of the soil here and there. Thus the islands have 156 inhabitants per square kilometre, whereas Jutland has only 56.

Of the population of the country in 1935 about 2,299,000

persons, i.e. about 62 per cent., lived in towns; however, this figure not only includes the population of Copenhagen and its neighbours Frederiksberg and Gentofte (which comprise the capital) and the towns which, in an administrative sense, have municipal government (85 in number), but also the population of suburban districts and other urban localities in the rural areas. The distribution of town and country population is thus: —

	<sup>5/11</sup> 1925	<sup>5/11</sup> 1930	<sup>5/11</sup> 1935
The Capital .....	731,496	771,168	843,168
85 provincial towns .....	750,801	787,742	865,000
85 suburbs .....	118,413	146,383	247,913
500 urban localities in the country .	340,805	379,149	342,960
Rural population proper .....	1,493,040	1,466,214	1,407,308
Total...	3,434,555	3,550,656	3,706,349

The Capital is the only really big town in Denmark and contains a good 23 per cent. of the population of the whole country. The next largest town, Aarhus in Jutland, only attains to 91,000 inhabitants, so that the great majority of provincial towns are very small. The 45 provincial towns with more than 5,000 inhabitants in 1935 are included in the following table: —

	Population 1935
Elsinore, in Zealand, .....	17,140
Roskilde, — .....	16,104
Slagelse, — .....	15,538
Holbæk, — .....	12,493
Næstved, — .....	12,229
Korsør, — .....	9,671
Kalundborg, — .....	7,620
Hillerød, — .....	7,608
Køge, — .....	6,952
Ringsted, — .....	6,780
Vordingborg, — .....	6,501
Rønne, in Bornholm .....	10,898
Nakskov, in Lolland .....	14,522
Nykøbing, in Falster .....	14,801

	Population 1935
Odense, in Funen .....	76,116
Svendborg, — .....	19,161
Nyborg, — .....	9,479
Middelfart, — .....	8,219
 Aalborg, in North Jutland .....	 48,132
Hjørring, — .....	11,714
Frederikshavn, — .....	10,500
Thisted, — .....	8,288
Nykøbing, — .....	8,177
Nørresundby, — .....	7,148
Brønderslev, — .....	6,272
Aarhus, in East Jutland .....	90,898
Randers, — .....	30,254
Horsens, — .....	29,856
Vejle, — .....	24,354
Kolding, — .....	23,520
Fredericia, — .....	21,463
Silkeborg, — .....	13,393
Hobro, — .....	6,745
Esbjerg, in West Jutland .....	30,714
Viborg, — .....	17,344
Herning, — .....	12,568
Skive, — .....	10,799
Holstebro, — .....	10,658
Varde, — .....	6,869
Ribe, — .....	6,207
Struer, — .....	5,726
Haderslev, in South Jutland .....	16,108
Sønderborg, — .....	12,115
Aabenraa, — .....	10,184
Tønder, — .....	6,415

No longer than half a century ago the urban population comprised only about a quarter of the population of the whole country; now, as a consequence of developments in industry, commerce and transport, and in connection therewith the increasing specialization in the community, it amounts to more than half. This is not only a result of the fact that farmers now purchase many of the commodities they once produced themselves; it is equally obvious that the present day extensive use of machinery in agriculture has the effect that farming proper requires less manual labour than it did formerly.

The population of Denmark is steadily increasing from year to year; at the present time the average increase is eight to nine per thousand, actually about 30,000, as the number of births annually is about 64,000, deaths number about 40,000, and immigrations 6000. The average birthrate is about 18 per thousand and mortality about 11 per thousand, as compared with 29 and 15 on an average in the first ten years of the present century.

The decline in the birth-rate that has taken place in Denmark, as in most other countries, among both married and unmarried mothers is not accompanied by any corresponding decline in the number of marriages, which for the last five years has been 9 per thousand annually, corresponding to 34,000 marriages annually at the present time; on the other hand the number of divorces is increasing and at present is about 3,000 per annum.

Together with the decline in the birth-rate there has been a still heavier decline in mortality. The resultant increase in the mean duration of life during the past twenty-five years has been about eight years, and the mean duration of life now is about 60 years for males and about 62 years for females. In the causes of death the decline is more marked among the epidemic diseases and digestive complaints, whereas cancer is recognized as a cause of death in a steadily increasing number of cases. Denmark has been able to maintain her position among countries with the lowest mortality.

As already stated, rather less than half of the population live in the country outside the urban areas. Among the rural population there are, of course, traders and artisans besides those engaged in farming; on the other hand the rapid increase of the urban population is to a great extent due to the circumstance that a large number of those whose occupation is not of an agricultural nature, but who are connected with and earn their living by work for the rural population, have congregated in the urban areas.

The following summary is given for the purpose of better illustrating the distribution of the whole population in 1930 according to the principal occupation groups: —

	Men	Women	Total
Agriculture, horticulture, forestry. } 613,800		503,600	1,117,400
Fisheries ..... }			
Handicrafts and industry.....	552,500	479,800	1,032,300
Commerce and financial operations	191,800	194,400	386,200
Traffic and commission business...	134,800	119,300	254,100
Administrative occupations, art and science .....	99,100	107,400	206,500
Domestic, etc.....	17,600	199,100	216,700
Inactives .....	126,700	210,800	337,500
<hr/>			
Total...	1,736,300	1,814,400	3,550,700
<hr/>			

The summary comprises the whole population, i.e. both those “economically active” and their dependents (wives, children, etc.).

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## THE CONSTITUTION

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The evolution of the Danish constitution cannot be described as an organic growth that slowly puts out branch after branch, and only bit by bit replaces individual obsolete ordinances with new ones as time demands them. On the contrary, its history contains a wealth of abrupt changes from an out-of-date system to one that is wholly new; but these changes have been brought about in such a manner that the history of Denmark has little or nothing to narrate of bloody revolutions.

In more modern times the year 1660 marks the point of intersection for a widely ramified reorganization of the constitution. Till then the country had had a form of government that certainly comprised a kind of popular representation (the Rigsdag), but under it the nobility had seized most of the power at the expense of the Crown and the other classes of society. This form of government having demonstrated its weaknesses in many ways, it collapsed without the coercive influence of the sword and in 1660—61 gave way to a new system that was based upon the principle of the unrestricted monarchy on the model so brilliantly set out by France under Louis XIV. In "The King's Law", the Act of the Constitution of that time, the system was even more definitely outlined than in most of the other countries where it prevailed.

Probably one of the most outstanding features of the development of social conditions under the constitution of 1660 was that a new nobility arose, with a position of economic and social strength that was at least just as great as that of its forerunner, whereas the peasantry sank down into the most profound state of wretchedness. On the other hand the Danish absolute monarchy in the last two decades of the eighteenth century witnessed a period of radical reforms that were of

particular advantage to the peasants, making Denmark in this respect a pioneer country, and causing consternation among the autocrats of the time; their beneficial effects were traceable long afterwards. It was not until about the year 1830, however, that movements tending towards new constitutional ideas began to be perceptible. It was the after-effects of the conceptions of the French Revolution that had spread to Denmark, as to other countries in Europe, although at first their sole result was that the well-to-do part of the population obtained the right to elect provincial consultative chambers. But with the Act of the Constitution of the 5th June, 1849, Denmark acquired a thoroughly modern, free constitution. Once again an obsolete system fell peacefully and without bloodshed, and once again a new one was created that took the full stride and went further along the lines of Liberalism than was the case in other countries; Belgium's constitution of 1831 was, if anything, taken as a model; but whereas in that country a certain census of taxation and income was demanded as a qualification for parliamentary franchise, the Danish Act of the Constitution contained no such provision.

This system, so thoroughly permeated by the idealism of democracy, was only allowed a brief lifetime. The tension between the Kingdom of Denmark and the two Duchies of Slesvig and Holstein made the constitutional matters unstable; amendments were already made in 1855 and 1863, and, when Denmark had lost both duchies as a result of the unhappy war of 1864, a deep incision was made in the constitution, the big taxpayers and possessors of wealth being given a privileged influence on the composition of Parliament's First Chamber (the Landsting), whereas the Second Chamber (the Folketing) in the main preserved its original liberal basis.

This diversity in the character of the construction of Parliament led to a protracted and bitter political struggle which was especially aggravated when the democratic opposition, recruited mainly from the peasant class, gained the majority in the Second Chamber, whereas a conservative government for years retained the power despite this majority. This strife never led to any disturbance of the peace of any kind, but it contributed towards firmly rooting in the mind of the population the ideas of democratism and later on exercised marked



influence upon Danish social and economic developments. The conflict came to an end in 1901 when a government was appointed in conformity with the majority in the Second Chamber; with that the parliamentary principle was established as the generally accepted foundation of constitutional life in Denmark. The victory of democratism was crowned when, in the middle of the World War, a new Act of the Constitution of the 5th June, 1915, was carried with the support of all political parties. Certain amendments were made to it on the 10th September, 1920, but for the most part these were simply a consequence of the incorporation of South Jutland in Denmark in accordance with the Treaty of Versailles.

The Act of the Constitution of June 5th, 1915, for the most part marks a return to the constitution of 1849, but with the introduction of certain modern ideas (including the enfranchisement of women) which in the meantime had been generally acknowledged. The Danish Constitution prescribes that the legislative authority rests jointly with the Crown and Parliament. The executive power is vested in the Crown, while the administration of justice is exercised by the courts. The Evangelical Lutheran Church is the established church, to which the King must belong. The King can constitutionally "do no wrong" and exercises his authority through the ministers he himself appoints and who are responsible for the government of the country. The ministers may be impeached by the King or the Second Chamber in matters relating to the discharge of their official duties, and such cases are tried before the High Court of the Realm, which comprises 13 members of the First Chamber and 13 members of the Supreme Court of Judicature. Without the sanction of Parliament the King cannot declare war or conclude peace, enter into or denounce alliances or commercial treaties, cede any part of the country, or enter into any obligation which alters the constitutional status of the country.

Parliament consists of the Folketing (the Second Chamber) and the Landsting (the First Chamber). All men and women who are of Danish nationality, of more than 25 years of age, and permanently residing in Denmark have the franchise, unless a sentence has been passed upon them by the courts for a "dishonourable offence" or if they are or have been in

receipt of Poor Relief without having refunded the amounts received, or are undischarged bankrupts, or declared incapable of managing their affairs. The members of the Folketing are elected for a period of four years. For the franchise to the Landsting the minimum age limit is 35 years and the elector must be a permanent resident in the Landsting constituency concerned. All who are qualified for the franchise are eligible for election to either Chamber. All members of the Folketing are elected directly by the electors for four years; nineteen of the members of the Landsting are co-opted and the others are elected indirectly by the electorate for eight years, half of them resigning their seats every four years. The King may at any time dissolve the Folketing, whereas certain circumstances must be present before the Landsting can be dissolved. While both Chambers are otherwise on an equal footing, the Finance Bill must be initiated in the Folketing.

## PARLIAMENT

Parliament assembles for its ordinary session on the first Tuesday in October, and the session as a rule extends over six to seven months. Members of Parliament receive a remuneration of 4,000 kroner in the case of residence in the Capital and 5,200 kroner in other cases — in both instances with a small addition varying with the cost-of-living index. In accordance with the Election Act at present in force the Folketing consists of 149 members. The election system is actually the proportional system, with direct and secret ballot on lists in large constituencies; the earlier system of election with single-seat constituencies is only formally retained, extended with a system of supplementary seats in order to secure a proportionate representation of the parties. Under the same Act the Landsting is composed of 76 members, and elections are likewise on the proportional system, but indirect, as the electors choose representatives with whom finally rests the election of the members of the Landsting.

At the present time eight parties are represented in the Danish Parliament, viz. the Conservative Party, the Liberal Lefts, the Radical Lefts, Social Democrats, the Free People's Party, the Communists, the Justice Union and the Slesvig

Party, only the first four representing any large number of members. These four parties may broadly be characterized by saying that the Conservative Party finds its supporters principally among the propertied and commercial classes in the towns. The Liberal Lefts secure most of their votes from the propertied rural classes. The Radical Lefts have their electors among the smaller landed property owners and certain intellectual circles in the towns. The Social Democrats have their main strength in the trade unions in both town and country. Of the smaller parties the Justice Union is mainly supported by the advocates of the ideas of Henry George, whereas the Slesvig Party represents the German Minority in North Slesvig and at the last election secured 12,617 votes. The Free People's Party arose out of a schism among the Liberal Lefts and represents certain extreme agrarian interests. The Communists advocate the views of the Third International.

After the last elections — to the Folketing on the 22nd October 1935, to the Landsting in September 1936 — the strengths of the parties are as follows: —

	Folketing	Landsting
Liberal Lefts .....	29	22
Conservatives .....	26	15
Social Democrats .....	68	31
Radical Lefts .....	14	7
Free People's Party .....	5	0
Justice Union .....	4	0
Slesvig Party .....	1	0
Independent (elected on the Faroe Islands) ..	0	1
Communists .....	2	0

At the last elections to the Folketing a National-Socialistic Party had also nominated candidates, who altogether polled 16,257 votes; not one was elected.

## THE GOVERNMENT

The present Stauning Government, which is based on a coalition between Social Democrats and Radical Lefts, came into power at the general election on 24th April 1929 and was appointed on 29th April. It assumed office after the Madsen-Mygdal Government, which was formed of Liberal Lefts. The

Stauning Government has maintained its position through two general elections, 16th November 1932 and 22nd October 1935, on the last occasion securing a considerable strengthening of its majority. Certain changes have been made in the ministry since its appointment, and its present construction is as follows:

Prime Minister: *Th. Stauning*.  
 Minister of Foreign Affairs: *Dr. P. Munch*.  
 Minister of Finance: *H. P. Hansen*.  
 Minister of Justice: *K. K. Steincke*.  
 Minister of Defence: *Alsing Andersen*.  
 Minister of Home Affairs: *B. Dahlgaard*.  
 Minister of Ecclesiastical Affairs: *Johs. Hansen*.  
 Minister of Education: *Jorgen Jorgensen*.  
 Minister of Social Affairs: *Ludvig Christensen*.  
 Minister of Public Works: *N. P. Fisker*.  
 Minister of Agriculture & Fisheries: *K. M. Bording*.  
 Minister of Trade, Industry & Shipping: *Joh. Kjærboel*.

Of the members of the ministry the Ministers of Foreign Affairs, Home Affairs and Education belong to the Radical Lefts, all the others being members of the Social-Democratic Party.

## RELATIONS BETWEEN DENMARK AND ICELAND

Iceland is a sovereign state in union with Denmark. The King of Denmark is also King of Iceland. The relations between the two countries were laid down by the Union Act of the 30th November, 1918, one of the provisions being that Denmark is entrusted with the safeguarding of the foreign affairs of Iceland.

## THE ADMINISTRATION

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The Council of State is the highest executive power in the country; the King is President, the remaining members being the Crown Prince (after attaining the age of 18 years) and all the Ministers. The Council of State deals with all new bills and all important Government measures. Each of the Ministers is, as a rule, in charge of a separate administrative department, for the direction of which he is responsible. Ministers may, however, be appointed without being at the head of any particular department, while a Minister may also be in charge of more than one department, either permanently or temporarily; thus for a number of years the Ministry of War and the Ministry of the Navy have been under one Minister — the Minister of Defence.

At the present time the affairs of the country are divided between the various Ministries as follows:—

*The Prime Minister's Department:* Affairs relating to the Constitution and to the Royal House; appointment and dismissal of Ministers; general affairs relating to Parliament; relations between Denmark and Iceland, including the Danish representation in that country; the administration of Greenland and certain affairs connected with the Faroe Islands.

*The Ministry of Foreign Affairs:* (see page 32).

*The Ministry of War:* Matters relating to defence by land (except the conscription organization, which comes under the Home Office); the Geodetic Institute.

*The Ministry of the Navy:* Matters relating to defence by sea; pilots, lights and sea-marks, life-saving services; inspection of fisheries; the Meteorological Institute.

*The Ministry of Finance:* The budget and public accounts; the Treasury; national assets and liabilities; pensions; the coinage; taxes; statistics and administrative audit.

*The Ministry of Justice:* Civil and criminal administration of justice;

police; prisons; the office of the Public Trustee; matrimonial legislation and succession; wrecks; fire service.

*The Ministry of Home Affairs:* Municipal affairs; elections to Parliament; the credit societies; naturalization; conscription; public health in general; legislation on epidemics; physicians and chemists; hospitals and quarantine.

*The Ministry of Social Affairs:* Social affairs; labour conditions; apprenticeship; inspection of factories; sick clubs; social insurance; life insurance; education of abnormal individuals; public child welfare; international co-operation in social politics, etc.

*The Ministry of Trade, Industry and Shipping:* Matters relating to trade, industry and handicrafts; banking and savings banks; the Stock Exchange; patents; shipping.

*The Ministry of Public Works:* Railways, post-office, telegraphs, and telephones; harbour works, dykes and highways; state harbours.

*The Ministry of Agriculture and Fisheries:* Farming, shooting and forestry, agricultural training; veterinary services; waterways; Crown domains; fisheries.

*The Ministry of Ecclesiastical Affairs:* Matters relating to public worship and the administration of the Established Church.

*The Ministry of Education:* Elementary and secondary education; the Universities and other scientific institutions; libraries and archives; the Royal Theatre; the Academy of Fine Arts; art collections and museums.

## LOCAL GOVERNMENT

As regards the participation of the State in local government the country is divided into 22 counties, each of which is administered by a Governor (Amtmand), who superintends the working of the law, supervises the subordinate officials and takes part in the municipal administration. In Copenhagen a Lord Lieutenant (Overpræsidenten) carries out the duties of an "Amtmand".

Local government is to a great extent in the hands of the municipal councils. Practically the same regulations apply for elections to the municipal councils as for elections to the Folketing, though with the two additional qualifications that the elector must be a tax-payer, and must have had permanent residence in the municipality for a certain period. Election is for four years and the proportional system is used. The municipal council elected by the tax-payers of Copenhagen (Borgerrepræsentationen), which at the present time numbers 55 members, elects for eight years at a time five salaried burgo-

masters and five salaried aldermen; these, together with the Lord Lieutenant, form the Executive Council ("Magistraten") of the town, and this body is in charge of the daily administration. The "Borgerrepræsentation" has the control of the public purse in the municipality; other matters are decided by the "Borgerrepræsentation" and the "Magistrat" jointly; in the event of disagreement the matter is decided by the Minister of Home Affairs.

After the last election on March 9, 1937, the state of the parties in the "Borgerrepræsentation" is as follows:—

Social Democrats . . . . .	37
Radical Liberals . . . . .	5
Conservatives . . . . .	11
Communists . . . . .	2

Of the ten seats on the "Magistrat" the Social Democrats have 6, the Conservatives 3 and the Radical Liberals 1.

In the provincial towns the Town Councils elect their own chairman, the Mayor, who carries out the decisions of the Council and supervises the daily administration. They may also elect aldermen up to a maximum of four. The principal restriction on the authority of these Town Councils is the fact that the consent of the Minister of Home Affairs is a necessary condition for the raising of loans, for the acquisition of real estate, and also for large increases of the rates. In certain cases the Lord Lieutenant of Copenhagen and the Mayors of the towns may temporarily nullify a decision of the Town Council, the matter being subsequently submitted to the Minister for Home Affairs for settlement.

The local government bodies in the rural districts are of two different types: the County Councils, one of which (in some cases two) is elected in each county, and the Parish Councils. The County Councils are elected for a period of six years by representatives of the Parish Councils; the "Amtmand" is always chairman of the County Council. The Parish Councils, of which there are about 1,300, are elected according to the ordinary rules and choose their own chairman. The County Councils manage the main roads and hospitals, etc., and supervise the work of the Parish Councils, over which they have the same authority as the Minister of Home Affairs

over the municipal councils of the towns. The Parish Councils manage the local schools, poor relief, local roads, etc.

## ADMINISTRATION OF JUSTICE

The present system of administration is based upon an Act which came into force in 1919. In accordance with that Act the ordinary judicial authority has three instances: 1) The Supreme Court is the highest tribunal of the country and consists of a president and 12 judges. 2) The two "Landsretter", one of which acts for the Islands and one for Jutland (including North Slesvig), form the second instance; these courts hold assizes in various places in their respective districts. 3) The lower court is in Copenhagen the so-called Town Court ("Byretten"), whilst the remainder of the country is divided into about 100 Lower Court Jurisdictions. In most of these there is only one judge, though in some of the larger districts there are two or three among whom the cases are distributed according to their character (criminal or civil). As a general rule each case is dealt with in two courts only. Civil cases of slight importance and criminal cases in which juries are not compulsory are heard at the lower courts and, without special permission, an appeal lies from them to the Landsret only, whereas cases of greater importance are heard at the Landsret and may be carried up to the Supreme Court.

Trials are as a rule public and verbal. Juries are compulsory in certain criminal cases, especially in cases which may involve capital punishment or penal servitude for 8 years or more, in cases concerning infanticide and criminal abortion, and in such cases as concern political misdemeanours. Jury cases are always tried before the "Landsret", and the jury decides the question of whether the accused is guilty or not guilty, and if there is reason for exemption from punishment or reduction of punishment. To the questions put before them by the court they have to reply simply "Yes" or "No"; if the verdict is "not guilty" the case is dismissed, but in the contrary event the court may demand a fresh trial. Public prosecutors appear in criminal cases, and public counsels for the defence may be appointed in cases of importance. Solicitors are appointed by the Minister of Justice, and women



are eligible for appointment. Barristers at the "Landsret" and the Supreme Court must pass a special test.

Besides the ordinary courts there are a few special courts of which the most important is the Maritime and Commercial Court ("Sø- og Handelsretten") in Copenhagen, which tries cases involving legal questions arising out of shipping and commerce. It consists of a President and a Vice-President, who are lawyers, and of some assessors conversant with maritime and commercial affairs. Maritime and commercial cases coming from the provinces may, with the consent of both parties, be brought before this court; otherwise, in maritime cases, two maritime experts assist the lower court in its findings. There is another special court for the settlement of disputes regarding labour agreements — the Permanent Arbitration Court — while ecclesiastical offences are tried by ecclesiastical courts. Military courts have been abolished.

The civil penal code at present in force dates from April 15, 1930, and came into force January 1, 1933. The new code, the details of which cannot be gone into here, seeks to carry into practice modern criminalistic views both in the general rules regarding the serving of sentences and its aims, and in the particular assessment of the various crimes. It may be mentioned that it does away with capital punishment, which is still retained in the military code, although it has not been put into effect in Denmark for several decades.

On April 1st, 1938 the present local police will be transferred to State administration, which will then be sovereign in all police matters throughout the country.

## NATIONAL DEFENCE

The military defence of Denmark is based upon national conscription, which was introduced in 1849. At the age of 17 years the young recruits are entered upon the conscription rolls, and between the ages of 19 and 25 they receive their first military training. According to the present Army Act, which dates from 1937, the period of service in the principal branches of the army is five months, apart from a few training periods of shorter duration later on. For the cavalry, and some of the other arms, the period of service is somewhat

longer. A part of the forces, "the Garrison Troops", which are trained partly for general guard-service in the garrisons, partly for special services, receives up to six months training. The men of the last eight years' service form the Troops of the Line, while those of the previous eight years form the Reserve. During these 16 years the conscripts must keep the enlistment authorities informed as to their address and may not leave the country without permission. Under war conditions the army can be brought up to a total strength of about 100,000; it comprises about 600 permanent officers and 600 to 700 non-commissioned officers ("Officianter"), besides a number of reserve officers. The army has several schools for the training of officers and "officianter", as well as arsenals for the manufacture of munitions.

The navy ("Søværnet") consists of the fleet ("Kystflaaden") and the coast defence organization.

The fleet, which is built more especially for coast defence, comprises a few small battleships, as well as gunboats, torpedo-boats, submarines, and minelayers, seaplanes and aeroplanes.

The coast-defence organization comprises a number of sea and land forts, whereas the former fortifications round Copenhagen on the land side have been dismantled.

According to the new 1937 law of defence the total personnel of the fleet and the coast-defence organization in peace time will be brought up to about 2000, including 270 officers and a number of petty officers, with an average training period for the conscripts of six months.

Under war conditions the total personnel of the navy can be brought up to about 4000, including all ranks.

The vessels of the navy are built and repaired at a special naval dockyard ("Orlogsværftet").

## DIPLOMATIC AND CONSULAR SERVICE

By an Act of May 6, 1921, the Danish foreign service, that is to say both the Foreign Office itself and the diplomatic and consular service abroad, was entirely reorganized, the principal object being to promote the economic interests of Denmark. The conditions prevailing after the war left no doubt that all

attention and effort must be concentrated not merely upon the retention of the existing markets of the country but upon the possibility of finding new markets, and on the search for sources from which the country could most cheaply and satisfactorily obtain its supplies of raw and subsidiary materials. At the same time the great political changes brought about by the war made it necessary to increase the representation of the country abroad in order to effect an improvement economically, socially, and politically in the official intelligence service, and to secure a more efficient protection of Danish interests and Danish subjects in foreign countries.

As regards the service at home, the central management is conducted by a Director General, in whose hands the direction of all Foreign Office affairs was placed. There is a consensus of opinion in Denmark that Danish foreign policy and Danish commercial policy cannot be separated.

The Act of May 6, 1921 was revised by the Acts of June 30, 1927, June 1, 1929 and March 30, 1935. The principles upon which the Act of 1921 was built have been maintained, in fact emphasized. In pursuance of the present Act the Foreign Office is now divided into two departments, 1) the economic-political, 2) the politico-juridical. The Press Bureau, Administration Section and the Archives come directly under the Director General. The Ministry also has a special adviser on international law. The diplomatic representation of Denmark in 44 countries is placed in the hands of 21 ministers, several of whom are thus accredited to more than one country. In the consular service Denmark has 6 consuls general sent out from Denmark and 6 consuls, besides a large number of honorary consular officials.

The following are the legations and consulates which at present represent Denmark: —

#### ICELAND

*Reykjavik.*

Envoy extraordinary and minister plenipotentiary F. le Sage de Fontenay.

#### THE ARGENTINE

*Buenos Aires, Avenida R. S. Peña 615.*

Envoy extraordinary and minister plenipotentiary K. A. Monrad-Hansen (also accredited to Chile and Uruguay).

Vice-consulates at Bahia Blanca, Mendoza, Necochea, Rio Gallegos, Rosario, Santa Fé, Tandil.

## AUSTRIA

*Vienna*, address see Rome.

Envoy extraordinary and minister plenipotentiary J. C. W. Kruse  
(also accredited to Italy and Hungary).

Consulate-General at Vienna.

## BELGIUM

*Brussels*, 56 Rue Belliard.

Envoy extraordinary and minister plenipotentiary O. Krag (also  
accredited to Luxemburg).

Consulate-General at Antwerp, Consulates at Brussels, Ghent, Liège,  
Verviers.

Vice-consulates at Bruges, Charleroi, Ostende.

### *Africa:*

Consulate at Kinshasa (Belgian Congo).

Vice-consulate at Elisabethville (Belgian Congo).

## BOLIVIA

*La Paz*: Consulate.

## BRAZIL

*Rio de Janeiro*, 67 Rua Almirante Tamandaré. Envoy extraordinary  
and minister plenipotentiary F. C. B. Boeck.

Consulates at Bahia, Pernambuco, Porto Alegre, Rio de Janeiro, Rio  
Grande do Sul, Sao Paulo, Santos.

Vice-consulates at Belem do Pará, Paranaguá, Sao Luiz do Maranhão.

## BRITISH EMPIRE

(Classified according to Continents). *Europe*.

*London*, 29 Pont Street, S.W. 1.

Envoy extraordinary and minister plenipotentiary Count P. F.  
Ahlefeldt-Laurvig.

Consul-General Chr. M. Rottbøll (7 & 8 Norfolk Street, Strand,  
W.C. 2).

Consulates at Edinburgh-Leith, Glasgow, Bristol, Hull, Liverpool,  
Manchester, Newcastle, Belfast, Dublin, Gibraltar, Larnaca (Cyprus),  
Malta.

Vice-consulates at Deal, Dover & Ramsgate, Great Yarmouth, Har-  
wich, Ipswich, Jersey, Lowestoft, Kings Lynn, Portsmouth, Shoreham,  
Southampton, Wisbech, Dartmouth, Falmouth, Fowey, Penzance,  
Plymouth, Weymouth, Boston (Lincolnshire), Grimsby, Middles-  
borough & Stockton, Aberdeen, Ardrossan (Ayrshire) & Troon, Berwick  
on Tweed, Bo'ness, Burntisland, Dundee, Fraserburgh, Grangemouth,  
Inverkeithing & St. Davids, Kirkwall, Lerwick, Leven & Methil,  
Montrose, Peterhead, Stornoway, Wick, Barrow in Furness, Cardiff,  
Fleetwood, Newport, Portmadoc, Preston, Swansea, Birmingham,  
Bradford & Leeds, Sheffield, Amble, Blyth, Seaham Harbour, Sunder-

land, West Hartlepool, Londonderry, Cork, Drogheda, Galway, Lime-  
rick, Waterford.

*Asia.*

Consulates at Aden, Bombay, Calcutta, Calicut, Colombo, Hongkong,  
Madras, Rangoon, Singapore.

Vice-consulates at Penang and Karachi.

*Africa.*

Consulate-General at Johannesburg.

Consulates at Accra, Bathurst (Gambia), Cape Town, Durban (Natal),  
Freetown (Sierre Leone), Lagos (Nigeria), Nairobi (Kenya Colony),  
Port Louis (Mauritius), Salisbury, St. Helena.

Vice-consulates at East London, Port Elizabeth, Mombasa, Wind-  
hoek, Bulawayo.

*America.*

*Montreal*, Consul-General G. B. Holler (Room 812 Keefer Bldg.,  
1440 St. Catherine Street West).

Consulates at Halifax, St. Johns (Newfoundland), Toronto, Vancouver,  
Winnipeg, Bridgetown (Barbados), Georgetown (British Guiana), King-  
ston (Jamaica), Port of Spain (Trinidad & Tobago), St. Georges  
(Bermudas) St. John's (Antigua).

Vice-consulates at Calgary, Quebec, St. John N. B., St. Kitts &  
Nevis, Edmonton, Port Arthur, Regina, Saskatoon.

*Australia.*

*Sydney*, Consul-General G. L. Høst (Kembla Bldg., 58 Margaret  
Street).

Consulates at Adelaide, Brisbane, Hobart, Melbourne, Perth.

Vice-consulates at Geelong, Fremantle, Brisbane, Port Pirie, Towns-  
ville.

Also Consulates at Christchurch, Wellington (New Zealand) and Suva  
(Fiji Islands).

Vice-consulates at Hokitika, Auckland, Palmerston North (New  
Zealand).

## BULGARIA

*Sofia*, Address see Bucharest.

Envoy extraordinary and minister plenipotentiary E. A. M. Biering  
(also accredited to Jugo-Slavia and Roumania).

Consulate at Sofia.

## CHILE

*Santiago*, Calle Agustinas 1185.

Envoy extraordinary and minister plenipotentiary K. A. Monrad-  
Hansen. Address: Buenos Aires, (also accredited to the Argentine and  
Uruguay).

Consulate-General at Valparaiso.

Vice-consulates at Antofagasta, Concepcion, Coquimbo, Iquique,  
Maghaellanes.

## CHINA

*Shanghai*, 26 The Bund.

Envoy extraordinary and minister plenipotentiary O. L. F. A.  
O'Neill Oxholm (also accredited to Siam).

Consul-General P. Scheel.  
 Consulates at Amoy, Hankow, Harbin, Canton, Tientsin, Tsingtao.  
 Vice-consulate at Swatow.

#### COLOMBIA

*Bogotá*, address see Mexico City.

Envoy extraordinary and minister plenipotentiary Fin Lund (also accredited to Costa Rica, Cuba, Guatemala, Mexico, Panama, Salvador and Venezuela).

Consulates at Bogotá and Bucaramanga.

Vice-consulates at Baranquilla, Cali, Medellin.

#### COSTA RICA

*San José*, address see Mexico City.

Chargé d'affaires Fin Lund (also accredited to Columbia, Cuba, Guatemala, Mexico, Panama, Salvador and Venezuela).

Consulate at San José.

#### CUBA

*Habana*, address see Mexico City.

Envoy extraordinary and minister plenipotentiary Fin Lund (also accredited to Colombia, Costa Rica, Guatemala, Mexico, Panama, Salvador and Venezuela).

Consulate at Habana.

Vice-consulates at Cienfuegos, Guantanamo, Matanzas, Nuevitas, Santiago de Cuba.

#### CZECHOSLOVAKIA

*Prague*, Malostránské náměstí 24 II, Prag III.

Envoy extraordinary and minister plenipotentiary — — —

Chargé d'Affaires a. i. E. Leth.

Consulates at Bratislava, Brünn, Pilsen, Reichenberg.

#### DANZIG

*Danzig*, Consulate.

#### SANTO DOMINGO

Consulate at Ciudad Trujillo.

Vice-consulates at Puerto Plata, Sanchez, San Pedro de Macoris.

#### EGYPT

*Cairo*, 177 Rue Emad-el-Dine

Envoy extraordinary and minister plenipotentiary N. P. Arnstedt.

Consulates at Alexandria, Cairo.

Vice-consulates at Port Said, Suez.

#### EQUADOR

Consulates at Quito and Guayaquil.

## ESTONIA

*Tallinn*, 7—8 Vabadusplats.

Envoy extraordinary and minister plenipotentiary F. E. H. A. Lerche. (Address: Helsingfors, also accredited to Finland, Latvia and Lithuania).

Chargé d'Affaires a. i. R. H. Kampp.

Vice-consulates at Narva and Narva-Jõesuu, Pernu.

## FINLAND

*Helsingfors*, 3 Boulevardsgatan.

Envoy extraordinary and minister plenipotentiary F. E. H. A.

Lerche (also accredited to Estonia, Latvia and Lithuania).

Vice-consulates at Åbo, Björneborg, Borgå, Brahestad, Frederikshamn, Gamla Karleby, Hangö, Jacobsstad, Kemi & Torneå, Kotka, Kristinestad, Lovisa, Mariehamn, Nystad, Raumo, Ulleåborg, Wasa, Wiborg.

## FRANCE

*Paris*, 77 Avenue Marceau, XVI.

Envoy extraordinary and minister plenipotentiary A. Oldenburg.

Consulate-General in Paris.

Consulates in Ajaccio, Bordeaux, Dunkerque, Havre, La Rochelle, Lyon, Marseille, Nantes, Rouen, Strasbourg.

Vice-consulates at Boulogne s. M., Calais, Gravelines, Roubaix, Dieppe, Fécamp, Le Tréport, Tonnay Charente et Rochefort, Cannes, Menton, Sète, Nice, Toulon, Brest, Ligué Saint Briec, Lorient, Morlaix, Quimper, St. Malo & St. Servan, St. Nazaire, Caën, Cherbourg. *Asia*.

Consulate at Saigon.

*Africa*.

Consulates at Algier, Dakar (Senegal), Port Gentil, Tamatave (Madagascar), Tunis.

Vice-consulates at Bone, Oran, Philippeville, Bizerta, Sfax, Sousse. *America*.

Consulates at Fort de France (Martinique), Pointe à Pitre (Guadelupe).

## GERMANY

*Berlin*, 4 Alsenstrasse, N.W. 40.

Envoy extraordinary and minister plenipotentiary Herluf Zahle.

Consulate-General, 57/58 Französischestrasse, Berlin, W. 8.

*Flensburg*, 19 Nordergården.

Consul-General Lauritz Larsen.

*Hamburg*, 32 Badestrasse.

Consul-General M. L. Yde.

Consulates at Bremen, Breslau, Dresden, Frankfurt o. t. M., Cologne, Königsberg, Leer, Leipzig, Lübeck, Mannheim, Munich, Rostock, Stettin, Stuttgart.

Vice-consulates at Brake, Bremerhaven, Cuxhaven, Hannover, Kiel, Neumünster, Elbing, Karlsruhe, Nuremberg, Wismar, Colberg, Stolpe-münde, Stralsund, Swinemünde.

## GREECE

*Athens*, address see Ankara.

Envoy extraordinary and minister plenipotentiary A. Nørgaard  
(also accredited to Turkey).

Consulates at Athens, Patras, Piraeus, Saloniki.

Vice-consulates at Candia, Zante.

## GUATEMALA

*Guatemala*, address see Mexico City.

Chargé d'affaires Fin Lund (also accredited to Colombia, Cuba,  
Mexico, Panama, Salvador and Venezuela).

## HAITI

*Port au Prince*, Consulate.

Vice-consulates at Cape Haytien, Les Gonaives, Jacmel.

## HONDURAS

*Tegucigalpa*, Consulate.

Vice-consulate at San Pedro Sula.

## HUNGARY

*Budapesth*, Address see Rome.

Envoy extraordinary and minister plenipotentiary J. C. W. Kruse  
(also accredited to Italy and Austria).

Consulate-General at Budapesth.

## IRAQ

*Bagdad*, Consulate.

## IRAN

*Teheran*, Avenue Amir Beglari.

Envoy extraordinary and minister plenipotentiary O. Engell  
(Address: Moscow, also accredited to the Soviet Union).

Chargé d'affaires a. i. E. Blechingberg.

Consulate at Teheran.

## ITALY

*Rome*, Via Ventiquattro Maggio 14.

Envoy extraordinary and minister plenipotentiary J. C. W. Kruse  
(also accredited to Austria and Hungary).

Consulates at Ancona, Bologna, Fiume, Genoa, Livorno, Messina,  
Milan, Naples, Trieste, Turin, Venice.

Vice-consulates at Florence, Cagliari, Carloforte, San Remo, Savona,  
Spezia, Messina, Catania, Palermo, Trapani, Bari, Brindisi, Taranto.  
*Africa*.

Consulate at Tripolis.



## JAPAN

*Tokyo*, 8 Nakadori Marunouchi.

Envoy extraordinary and minister plenipotentiary R. F. C. A. Bertouch-Lehn.

Consulates at Tokyo, Kobe, Nagasaki, Yokohama, Osaka.

## JUGO-SLAVIA

*Beograd*, Garasāninova ulica 33 Beograd IX.

Envoy extraordinary and minister plenipotentiary E. A. M. Biering (Address: Bucharest, also accredited to Bulgaria and Roumania).

Consulates at Beograd, Ljubljana, Zagreb, Sarajevo, Skoplje.

Vice-consulates at Dubrovnik, Split and Sušak.

## LATVIA

*Riga*, Baznīcas iela 19.

Envoy extraordinary and minister plenipotentiary F. E. H. A. Lerche. (Address: Helsingfors, also accredited to Finland, Estonia and Lithuania).

Chargé d'Affaires a. i. M. A. Langberg.

Consulate at Riga.

Vice-consulates at Liepāja and Ventspils.

## LIBERIA

*Monrovia*, Consulate.

## LITHUANIA

*Kaunas*, 37 Vytauto Prospektas.

Envoy extraordinary and minister plenipotentiary F. E. H. A. Lerche. (Address: Helsingfors, also accredited to Finland, Estonia and Latvia).

Chargé d'Affaires a. i. S. P. Duurloo.

Consulates at Kaunas and Klaipėda.

## LUXEMBURG

*Luxemburg*, Address see Brussels.

Envoy extraordinary and minister plenipotentiary O. Krag (also accredited to Belgium).

Consulate at Luxemburg.

## MOROCCO

Consulate at Casablanca.

Vice-consulates at Tangier and Port Lyautey.

## MEXICO

*Mexico City*, 14 a Calle de Puebla 326, Mexico, D. F.

Envoy extraordinary and minister plenipotentiary Fin Lund (also accredited to Colombia, Costa Rica, Cuba, Guatemala, Panama, Salvador and Venezuela).

Vice-consulates at Guadalajara, Mazatlan, Merida/Progreso, Monterey, Tampico, Tapachula and Vera Cruz.

## MONACO

*Monte Carlo*, Consulate.

## THE NETHERLANDS

*The Hague*, 74 Bezuidenhout.

Envoy extraordinary and minister plenipotentiary Harald Scavenius  
(also accredited to Switzerland).

Consulate-General at Rotterdam, Consulate at Amsterdam.

Vice-consulates at Delfzyl, Harlingen, Dordrecht, Flushing, Vlaardingen, Leiden.

*Asia*.

Consulates at Batavia, Macassar, Padang, Medan, Soerabaya.

Vice-consulates at Semarang.

*America*.

Consulates at Willemstad (Curacao).

## NICARAGUA

Consulates at Bluefields and Managua.

Vice-consulate at Corinto.

## NORWAY

*Oslo*, 7 Olav Kyrresgate.

Envoy extraordinary and minister plenipotentiary H. L. H. Kauffmann.

Consulates at Bergen, Stavanger, Trondheim.

Vice-consulates at Arendal, Drammen, Farsund, Flekkefjord, Frederiksstad, Grimstad, Halden, Horten, Kragerø, Kristianssand, Larvik, Lillesand, Mandal, Moss, Porsgrunn, Sandefjord, Skien, Tønsberg, Alesund, Bodø, Hammerfest, Kristiansund, Molde, Narvik, Tromsø, Vadsø, Vardø, Høugesund.

## PALESTINE

Consulates at Jaffa-Tel Aviv and Jerusalem.

## PANAMA

*Panama*, Address see Mexico City.

Chargé d'affaires Fin Lund (also accredited to Colombia, Costa Rica, Cuba, Guatemala, Mexico, Salvador and Venezuela).

Consulates at Panama and Colon.

## PARAGUAY

*Asuncion*, Consulate.

## PERU

*Lima*, Consulate-General.

Vice-consulates at Callao, Mollendo.

## POLAND

*Warsaw*, 3 Królewska.

Envoy extraordinary and minister plenipotentiary — — —

Consulates at Gdynia, Lwow, Kattowitz, Lodz, Poznań, Warsaw.

## PORTUGAL

*Lisbon*, Address see Madrid.

Envoy extraordinary and minister plenipotentiary F. C. B. Boeck  
(also accredited to Spain).

Consulate-General at Lisbon.

Consulates at Oporto, Funchal (Madeira).

Vice-consulates at Faro, Fayal, Ponta Delgada, San Vincent, Setubal,  
Villa Nova de Portimao, Figueira da Foz.

*Africa*.

Consulates at Lourenco Marques (Mozambique) and Sao Paulo de  
Loanda (Angola).

Vice-consulate at Beira (Mozambique).

## ROUMANIA

*Bucharest*, 20 Alea Modrogan, Bucharest III.

Envoy extraordinary and minister plenipotentiary E. A. M. Biering.  
(also accredited to Bulgaria and Jugo-Slavia).

Consulates at Galatz and Turda.

Vice-consulates at Soulina, Constantz, Braila.

## SALVADOR

*San Salvador*, Address see Mexico City.

Chargé d'affaires Fin Lund (also accredited to Colombia, Costa  
Rica, Cuba, Guatemala, Mexico, Panama and Venezuela).

Consulate at San Salvador.

## SIAM

*Bangkok*, Address see Shanghai.

Envoy extraordinary and minister plenipotentiary O. L. F. A.  
O'Neill Oxholm, (also accredited to China).

Consulate-General at Bangkok (Oriental Avenue).

## SOVIET UNION

*Moscow*, 23 Staro-Konjuschenny, Moscow 2.

Envoy extraordinary and minister plenipotentiary O. Engell  
(also accredited to Iran).

*Leningrad*, 22 Nabjeresch-naja 9 Januar, Leningrad XX.

Consul J. Oluf.

## SPAIN

*Madrid*, 34, Calle de Fortuny.

Envoy extraordinary and minister plenipotentiary F. C. B. Boeck.  
(also accredited to Portugal).

Consulates at Alicante, Barcelona, Bilbao, Cadiz, Corunna, Malaga,  
Santa Cruz de Tenerife, Valencia.

Vice-consulates at Carthagena, Denia, Torrevieja, Palma (de Mal-  
lorca), Terragona, San Sebastian & Pasages, Santander, Huelva, Jerez  
de la Frontera, San Lucar de Barrameda, Seville, Ferrol, Vigo, Almeria,  
Las Palmas, Gandia.

## SWEDEN

*Stockholm*, 70 Valhallavägen.

Envoy extraordinary and minister plenipotentiary Count E. V. S. C. Reventlow.

Consulate-General at Stockholm.

Consulates at Gothenburg, Malmö.

Vice-consulates at Gefle, Haparanda, Hernösand, Hudiksvall, Kalmar, Linköping, Luleå, Mönsterås, Kalix, Norrköping, Nyköping, Oscarshamn, Skellefteå, Sundsvall, Söderhamn, Umeå, Westervik, Örnsköldsvik, Cimbrishamn, Helsingborg, Höganäs, Jönköping, Karlshamn, Karlskrona, Kristianstad, Landskrona, Lund, Ronneby, Sölvesborg, Trelleborg, Vexjö, Ystad, Falkenberg, Halmstad, Karlsstad, Lysekil, Marstrand, Strömstad, Uddevalla, Warberg, Westerås, Borås, Linköping, Örebro, Visby.

## SWITZERLAND

*Berne*, 38 Luisenstrasse.

Envoy extraordinary and minister plenipotentiary Harald Scavenius.

(Address: The Hague, also accredited to The Netherlands).

Chargé d'Affaires a. i. Count E. H. Schack.

Consulates at Basel, Berne, Geneva, Zürich.

Vice-consulate at Montreux.

## SYRIA

*Bairut*, Consulate.

Vice-consulate at Aleppo.

## TURKEY

*Ankara*, Asgi Ayrandji, Kavaklidéré.

Envoy extraordinary and minister plenipotentiary A. Nørgaard (also accredited to Greece). Chancellerie de Légation at Istanbul, 111 Tépébachi, Boîte postale Beyoglu 201.

Consulate at Izmir.

## UNITED STATES OF AMERICA

*Washington*, 1620 Belmont Street, N. W.

Envoy extraordinary and minister plenipotentiary O. Wadsted.

*Chicago*, 38 East Bellevue Place.

Consul-General R. Baumann.

*New York*, 17 Battery Place, Suite 2734—2737, New-York City.

Consul-General Georg Bech.

*San Francisco*, Room 461 Mills Bldg., 220 Montgomery Street.

Consul A. Sporon-Fiedler.

Consulates at New Orleans, Seattle, Honolulu (Hawaji), San Juan (Porto Rico), St. Thomas (Virgin Islands).

Vice-consulates at Brookings, Denver, Detroit, Grand Forks, St. Louis, Minneapolis, Omaha, Salt Lake City, Galveston, Houston, Mobile, Port Arthur (Texas), Baltimore, Boston, Charleston, Newport News,

Norfolk, Philadelphia, Savannah, Los Angeles, Portland, Mayaguez, Ponce, Cleveland, West Palm Beach, Tampa (Florida).

*Asia.*

Consulate at Manila (Philippines).

#### URUGUAY

*Montevideo*, Address see Buenos Aires.

Envoy extraordinary and minister plenipotentiary K. A. Monrad-Hansen, (also accredited to the Argentine and Chile).

Consulate at Montevideo.

#### VENEZUELA

*Caracas*, address see Mexico City.

Envoy extraordinary and minister plenipotentiary Fin Lund (also accredited to Colombia, Costa Rica, Cuba, Guatemala, Mexico, Panama and Salvador).

Consulate-General at Caracas.

Consulate at Maracaibo.

Vice-consulates at Ciudad-Bolivar, Puerto Cabello.

### THE CHURCH

Until the middle of the nineteenth century all Danish subjects had to belong to the Lutheran Church, although Catholics, Reformists and Jews had a right to live in certain towns. By the Constitutional Act of 1849 religious liberty was introduced into Denmark, and, in consequence, compulsory baptism was subsequently expressly abolished, while civil forms of marriage and burial were allowed. In the Constitution, however, it is still laid down that the Lutheran Church is the Established Church of Denmark, and that it shall be supported by the State. Likewise, laws regarding the Church are passed by the Crown and Parliament in the same manner as all other laws. Church legislation during the past fifty years has borne the marked impress of its great respect for religious liberty. Among the provisions of the Acts in question the following may be mentioned:

Nobody is obliged to accept the ministrations of the incumbent of the parish to which he belongs; free congregations may be formed to choose and pay their own clergymen, without being regarded as having left the Established Church, whose church buildings they have the right to use; finally, free con-

gregations may be formed outside the Established Church, with full liberty as to public worship and creed. In the Established Church each parish elects a congregational council, which governs the church property of the parish and exercises a certain influence on the arrangement of services and the education of the young in religious knowledge; the councils also have a certain voice in the appointments to the clerical offices, which otherwise are in the hands of the Government. The country is divided into nine bishoprics, and the nine bishops, with a number of deans, supervise the parish clergymen, of which there are about 1,300 altogether. The congregational councils also have some influence in the appointment of bishops. Clergymen must, as a rule, have taken a theological degree at the University; they are paid out of a fund established from the former church lands and the old tithes as well as voluntary parish contributions, all of which have now been commuted.

The number of persons in Denmark who are not members of the Established Church was, at the time of the last census, 70,000. The religious communities outside the Lutheran Church which are most strongly represented in Denmark are the Catholics, Reformists, Jews, Methodists, Baptists and Irvingites. The first four of these are recognized by the Government and thus have the right to solemnize marriages which are valid according to Danish law. Of late years the Roman Catholic Church especially has carried on considerable propaganda in Denmark and owns several churches, convents and charitable institutions.

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## EDUCATION

### THE ELEMENTARY SCHOOL

The Danish elementary school is a combined school, though at present only in the towns, where elementary and secondary schools are combined — the lower classes of the elementary school forming the lower grade to the secondary school. The compulsory school age is from seven to fourteen years. When the scholars reach the fourth or fifth standard of the elementary school, i. e. at the age of eleven, they may pass into the first form of the secondary school (Mellemskolen). This Mellem-skole (intermediate school) has a course of four years and the scholars pass their examination (Mellemskole-examen) at the age of fifteen. They may then either enter the one-year "Real-klasse" and pass the "Realexamen" or the three-year "Gymnasium" (grammar school) and pass the "Studerter-examen". The grammar school has three lines: classical languages, modern languages, and mathematics and natural science. The "Real-examen" qualifies for Civil Service apprenticeships in the railway, post, telegraph and customs services, and for studies at the Royal Veterinary and Agricultural College, provided the students pass an additional examination, the College of Dentistry, or the High School of Commerce, while the "Studerter-examen" qualifies for the University and the State College of Engineering.

In 1935 there were 4,591 elementary schools with a total of 490,950 scholars. Of these, 34 were State schools with 11,600 scholars, 3,993 were municipal schools with 437,450 scholars, and 564 were private schools with 41,900 scholars. 17,100 teachers (10,150 men and 6,950 women) were employed at these schools, while 4,233 of the schools with 422,150 scholars were elementary schools and 358 with 68,800 were secondary schools.

The cost of the private schools is for the most provided for by the school fees paid by the parents, though they also receive large grants from the Government and the local authorities. In the municipal elementary schools instruction is free, and in the municipal secondary schools and the State schools — the latter are all secondary schools — only those parents who have an income exceeding a certain amount pay a very small fee. Thus both State and municipal schools are almost entirely run by the State and municipality, and the State makes considerable grants to the municipal schools. In parts of the country close to the border, where part of the population uses another language than Danish, a municipal school or school section must be maintained with a foreign language of instruction (Act No. 223, May 1st, 1923); the Government grants a sum larger than normally, as it will be difficult for a municipality alone to afford the heavily increased expenditure for such schools. In 1935 in the South Jutland provinces there were 82 of these schools and school sections with 4,237 scholars. The ordinary grant is made by the Government to private schools in the border area, regardless of whether the language of instruction is Danish or another. In 1934—35 the Government expenditure on elementary schools was about 44 million kroner, and that of the municipalities about 53 millions.

## THE UNIVERSITY

There are two universities in Denmark, one in Copenhagen and, since September 1928, another in Aarhus. The University of Copenhagen, founded in 1479, is a public institution directed by the Ministry of Education. The University Council (*Lærerforsamling*) consists of all professors and instructors and the Rector Magnificus (President), elected for a period of two years by the council and representing the University officially, and the Administrator, who is appointed by the Crown and is in charge of the financial affairs. Furthermore the Consistorium — about twenty professors also elected by the *Lærerforsamling* — supervises the administration. The students elect a Students' Council to treat with the University in matters



concerning the students and, together with other students' councils from similar institutions they elect the Danish Students' National Council, which represents all Danish students.

Registration is open to any graduate, man or woman, from the grammar school, and all instruction is free except for a small fee of 22 kroner, payable on registration, and still lower fees on registering for examinations. The lectures are public and open to all, graduates or not. The year is divided into two terms, from September 1st to December 22nd and from February 1st to June 7th. The number of registered students is about 5,400, of which about a thousand are women, and the number of professors and instructors is about 130. The University has five faculties: Theology, Law and Economics, Medicine, Arts, and Science.

The final degrees are as follows:

Candidatus theologiæ (cand. theol.) — Theology.

Candidatus juris (cand. jur.) — Law.

Candidatus politices (cand. polit.) — Political Economy.

Candidatus medicinæ (cand. med.) — Medicine.

Candidatus magisterii (cand. mag.) — Arts and Science<sup>1</sup>.

Magister artium (mag. art.) — Arts<sup>2</sup>.

Magister scientiarum (mag. scient.) — Science<sup>3</sup>.

There is no fixed time for the duration of the courses, and the student can register for his examinations when he considers himself qualified to do so. The minimum, however, is usually five to seven years, medicine and arts taking more time than the other subjects. Doctor's degrees are obtained by scientific treatises, which have to be printed and defended in public.

The Aarhus University is an independent corporation. The board of directors consists of seven members, three appointed by the City Council of Aarhus, three by the University Association in Jutland, and one by the University Council (Lærer-

<sup>1</sup> Teachers with a main subject and one or two additional subjects in arts as well as in science.

<sup>2</sup> Teachers with only one subject, but more inclusive and belonging to arts.

<sup>3</sup> Teachers with only one subject, but more inclusive and belonging to science.

forsamlingen, professors, etc.). About 100 students (20 women) have registered at the University, about 80 studying medicine. There are 15 professors and other teachers.

## TECHNICAL EDUCATION

The State College of Engineering ("Den polytekniske Lærestanstalt") was founded in 1829 in Copenhagen and is an institution of the same rating as the University. It is equipped with numerous excellent laboratories and its first director was the inventor H. C. Ørsted. Admission is open to any one who has passed the "Studenterexamen" (math.-science branch) or a special entrance examination. The fee is from 22 to 50 kroner per term for instruction. The terms are the same as those at the University. The number of students is about 1000 and of professors and instructors about 110.

The College has four branches of study: Chemical Engineering, Mechanical Engineering (including Shipbuilding), Civil Engineering, and Electrical Engineering.

The duration of the courses of study is fixed at  $4\frac{1}{2}$  to  $5\frac{1}{2}$  years, but may be extended to  $6\frac{1}{2}$  or 7 years, giving the degree of "cand. polyt." (candidatus polytechnices).

The Technological Institute in Copenhagen was established in 1908 with the object of giving short courses for artisans and manufacturers and in the use of machinery for farmers. The institute has a department for each trade. About 7,700 pupils attended the Institute in 1935. In addition, there are a few smaller industrial schools for artisans.

Other technical schools of various descriptions exist both in the towns and in the rural districts, providing theoretical courses for apprentices along with their practical training. The number of these schools in 1935 was 320, with about 35,000 pupils.

## AGRICULTURAL COLLEGES

A veterinary school was opened in Copenhagen in 1773 and was thus one of the first in Europe, and at the beginning of the following century agricultural lectures were started at the

University. It was, however, not till the Royal Veterinary and Agricultural College was established in 1858 that real progress was made in agricultural training. The College has recently been extended and now has large laboratories and experimental buildings, etc. It has six departments: farming, veterinary surgery, surveying, horticulture, forestry, and dairying. Some previous practical training is all that is required for farming, horticulture, and dairying, whereas for the other branches the "Studententerexamen" or other examinations are necessary. The number of students is about 750. The duration of the study is normally  $2\frac{2}{3}$  years for farming,  $5\frac{1}{2}$  for veterinary surgery,  $4\frac{3}{4}$  for surveying,  $2\frac{1}{2}$  for horticulture,  $5\frac{2}{3}$  for forestry,  $2\frac{2}{3}$  for dairying. These periods include for forestry two years' and for surveying one year's practical training outside the College. A number of foreigners attend the college, especially for farming.

As a means of supplementing practical training in farming there are agricultural schools with courses extending from five to twelve months and intended for young farmers. Besides agricultural lines such as crops, cattle, etc., instruction is given in subjects of general education. The first of these schools was opened simultaneously with the folk high schools in the 1840's, and in 1935 there were 21 agricultural schools with 2,600 pupils. Many of the folk high schools (see below: Popular Adult Education) also have departments for instruction in farming.

## COMMERCIAL TRAINING

In Copenhagen there is an establishment for advanced training, the Commercial High School, with a two-years' course (day-school) and special evening courses, attended by 797 pupils in 1935. Furthermore, there are 120 commercial schools, spread all over the country, viz. two high schools, seven schools for clerks, and 111 for apprentices. At the technical schools there are 24 commercial courses. The total number of students is 14,800.

## OTHER EDUCATIONAL ESTABLISHMENTS

Of normal schools there were 19 in 1935, attended by about 1800 students. Seven schools are State establishments and

twelve private. They give a four-years' course, and graduates are qualified as teachers in the elementary and secondary schools. In addition, there is a Teachers' High School in Copenhagen, providing advanced courses taking from two weeks to one year, as well as an Institute of Physical Culture. As a rule the teachers at the "Gymnasium" schools have had a university training. Of other educational establishments there are the Pharmaceutical College for the training of pharmaceutical chemists, the School of Dentistry, schools for engineering, navigation and housekeeping, and for art training the Conservatory of Music and the Royal Academy of Fine Arts.

### POPULAR ADULT EDUCATION

A feature peculiar to Danish adult education is the Danish Folk High Schools. Originating from the conceptions of Bishop N. F. S. Grundtvig, historian and educationalist, the first school was established in 1844, and in a short time a great number came into existence. They are principally intended for the rural population, from which they in fact draw most of their students. Instruction is given in ordinary school subjects, in history, literature, economics, hygiene, etc. and in some of the schools farming subjects and housekeeping too. As a rule the schools have a five-months' winter course for young men and a three-months' summer course for young women, and the fees for instruction, board and lodging are 70 to 85 kroner per month; students may obtain maintenance grants from the Government. Together with the agricultural schools these institutions have been of great cultural importance to the young people of the country and have contributed to their economic advancement through improved farming methods, dairy farming, hog production, and, in particular, the co-operative movement. About one-third of the agricultural youth of the country have taken a course at the folk high schools and the agricultural schools during the past thirty years. In 1935 there were 59 folk high schools with 6,800 students, of whom 3,500 were men and 3,300 women. Of the 6,800 high school students, 4,900 were attending ordinary high school courses, 700 advanced high school courses, 300 farming courses, 200 handicraft courses

and 700 other courses (housekeeping and physical culture, etc.) 3,000 of the students at the high schools and agricultural schools were supported by the Government, whose expenditure on grants to these schools was about 1.4 million kroner in 1934—35.

The International People's College at Elsinore was founded in 1921 with the object of bringing together for study and personal intercourse men and women from many countries. The foundation was inspired by the tradition of the Danish folk high schools, which have furnished a cultural basis for the growth of cooperation among the Danish farmers.

Like the Danish Folk High-School the International People's College is personal in method, individualistic in educational principle and ethical in purpose, seeking to apply the principles of Christianity in individual and social life.

The work of the College does not end with an examination. As far as possible the curriculum tries to adapt itself to the individual needs of the students, who choose the subjects they wish to study after consultation with the principal. International Relations, Comparative Culture and Languages are the main subjects of study.

The staff is international. From a small beginning the College has developed from year to year and now accommodates about 100 students. Some 2300 students, more than 700 of whom being foreigners, have attended its winter and summer terms, and some 3400 (2100 foreigners) its vocation courses.

Many classes of people are included in the student group.

Mr. Døssing, director of Danish public libraries, is chairman of the council, Mr. Hegerman-Lindencrone of the Board of Education chairman of the committee.

In Copenhagen there is a kind of folk high school — Borup's High School — which, however, is different from the others because the students do not live in the school. It has been a very well attended establishment, the number of students in 1934—35 being about 100 at the day school and 290 for the evening courses.

Two folk high schools (Roskilde and Esbjerg) are high schools for workers and are primarily attended by young workers from the town.

For young men and women over school age there are con-

tinuation schools in the towns as well as in the country, with both day and evening classes. In 1935 there were 3,514 continuation schools and evening schools, with about 87,400 pupils. Though these schools are mainly intended for young men and women, people of all ages attend them. Instruction is given once or twice a week, primarily in winter, and it is free of charge. The schools are private or municipal and they are supported by the Government as far as salaries to teachers and the cost of instruction materials are concerned. These schools instruct in ordinary school subjects as well as in certain practical lines, for instance housekeeping and women's trades.

### FACILITIES FOR FOREIGN STUDENTS

While it is hardly to be expected that foreign students should come to Denmark in order to obtain academic degrees or diplomas, Denmark has a number of institutions, especially scientific, of interest to foreigners. Among the scientific institutions the following should be mentioned: Physics: The Institute of Theoretical Physics, established to a great extent with the assistance of the Rockefeller Foundation; the director is Professor Niels Bohr (Nobel Prize 1922). Physiology: The Institute of Physiology, also supported by the Rockefeller Foundation; director: Professor Arnold Krogh (Nobel Prize 1920). Bio-Chemistry: The Carlsberg Laboratory; Professor S. P. L. Sørensen. The Institute of Bio-Chemistry, Professor Rich. Ege. Chemistry: The laboratories of the University and the State College of Engineering. Dairy Farming: Bio-Chemical Laboratory, Professor Dr. Orla Jensen. Marine Biology and Hydrography: The Carlsberg Laboratory, Prof. Ø. Winge. Old Norse (Icelandic), large collections of mediaeval MSS. in the University library. Archaeology: Exceedingly rich collections from Stone and Bronze Ages. Medicine: Finsen Institute — Cancer Research. Bacteriology: State Serum Institute (Principal: Dr. Thorvald Madsen), and the State Veterinary Serum Laboratory (Director: Prof. M. D. Christiansen). Natural Science: Museums and collections.

Information regarding these studies may be obtained from the Dansk Studieoplysningskontor, the University, Studie-

stræde 6, Copenhagen, or its branch office: Anglo-Danish Students' Bureau, 98 Great Russell Street, London W.C. 1; Dr. J. Kruuse, Sorbonne, 196 Avenue de Versailles, Paris XVI. In the U.S.A.: The American Scandinavian Foundation, Information Office, 116 East 64th Street, New York.

A committee under the presidency of Holger Andersen, Member of the Landting (Senate), Former President of the mixed Commission for the exchange of Greek and Turkish populations, have organized an annual holiday course in Danish for the benefit of foreigners, beginners as well as advanced students. The course, which is usually held in the month of August, comprises Danish, various aspects of life in Denmark, visits to museums and institutions, and excursions to places of interest. The address of the course is: "Feriekursus", 26 Frederiksholms Kanal, Copenhagen K., Denmark.

English, German and French, especially the first two languages, are widely spoken and understood in Denmark, so that foreigners will have no serious difficulty on account of their language during their visit to Denmark.

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## PUBLIC FINANCE

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As most items of public expenditure are different for State and municipalities according to the statistical reviews, only a small part of the revenues of municipalities being received in the form of grants from the State or other municipalities, one may add together the figures for the State and the local bodies and find that at the present time public expenditure amounts to about 850 million kroner, of which half represents the State and half the local expenditure.

Since 1914 the expenditure has more than quadrupled ; apart from the fact that many of the items have risen more than the level of prices, both State and local authorities have occupied themselves with new tasks, a number of which are of a social nature.

The increase in the revenue necessary to meet the enhanced expenditure has been secured to some extent through the fact that the rise in the level of prices and income has increased the public revenue, and also through the raising of the rates of taxation and public fees, while new sources of taxation have been opened up.

At the present time the public debt amounts in all to about 2,400 million kroner, of which rather more than half applies to the State. Like public expenditure, the public debt has increased greatly since the outbreak of the Great War.

### 1. THE STATE

The revenue and expenditure of the State are voted by the legislature. Shortly after the assembling of Parliament (the



Rigsdag) in October the Finance Bill is presented to the Folketing (Lower House). After having been debated there for a period of five months or so the Bill is sent to the Landsting (Upper House) in March, and, after being passed in both Houses and having received the royal assent, comes into force for the following financial year, which begins on April 1st and ends on March 31st. Towards the end of the financial year a Supplementary Budget is passed for the purpose of supplementing the revenue and expenditure covered by the Finance Act. An account of the revenue received and expenditure incurred is published by the Minister of Finance, this account closely following the items as listed in the Finance Act, according to which §§ 1—7 have to do with current revenues and §§ 8—25 the current expenditure, while all revenue and expenditure on the Capital Account are placed to § 26. At the end of the financial year a statement is issued showing the State assets and liabilities.

The principle applied in these accounts is the net system, which is of particular importance as regards the Public Undertakings, the difference between their receipts and expenditure simply being posted to revenue, whether the undertaking has yielded a surplus or made a deficit, as in the latter case the sum of the deficit is deducted direct from the revenue, a system that differs from that employed in other State budgets where a deficit is posted to the expenditure side.

Of other outstanding peculiarities it may be mentioned that since 1925/26, when determining the surplus (deficit) of Public Undertakings and expenditure on purposes that require the presence of real property and plant, the expenditure includes interest and sinking fund on these properties and plants, and further, that the expenditure on wages to State employees includes a contribution towards the cost of pensions. As far as the expense items: interest and pension contribution are concerned, these postings solely express transfers within the current account, as the sums for interest and pensions debited to the various accounts are credited to the Account for Interest Receipts (from which account the actual State expenditure for interest on the national debt is simultaneously taken) and the Account for Pensions. The posting of the expenditure items concerned with the sinking fund, on the other hand, reflects

the contribution from the current account for the upkeep of State property and plant, these sums appearing as revenues on the capital account (§ 26).

### REVENUE AND EXPENDITURE

In the financial year 1935/36 the current revenue totalled 418.9 million kroner, and the current expenditure 405.4 million kroner, so that there was a surplus on the current account of 13.5 million kroner.

The revenue, in its principal groups, was as follows :

	Mill. kr.	Percentage of total
Revenue from Crown Lands, Public Undertakings, and from Holdings, Funds, etc. . .	— 28.4	— 6.8
Taxes on Real Estate . . . . .	12.1	2.9
Income and Property Tax . . . . .	119.5	28.5
Stamp Taxes . . . . .	20.0	4.8
Customs and Excise . . . . .	278.0	66.4
Fees and perquisites, etc. . . . .	10.8	2.6
Miscellaneous . . . . .	6.9	1.6
<b>Total . . .</b>	<b>418.9</b>	<b>100,0</b>

The total sum does not include legacy duties (14.4 million kroner) which have been placed to the credit of the Capital Account.

The Income and Property taxes thus yielded about 119.5 million kroner, or 28.5 per cent. of all revenue, and the Customs and Excise dues 278 millions, or 66.4 per cent.

A perusal of the various items of revenue on the State account shows that the revenue from Crown Lands was 0.2 million kroner.

During and after the war the State Railways, and the Postal, Telegraph and Telephone Services returned heavy deficits. In 1935/36 these and other State undertakings resulted in a total deficit of about 15.2 million kroner, the Railways having a deficit of 17.1 million kroner. The Postal, Telegraph and Telephone Services had a surplus of 3.5 millions, the Mint a surplus of 0.7 million kroner, whereas the other undertakings returned a total deficit of about 2.3 millions. On this point the remarks

already made regarding the method of posting interest and the sinking fund must be borne in mind.

The main taxes upon Real Estate are called "Ejendomsskyld" and "Grundskyld" and are assessed on the commercial value to the extent of 1.1 per thousand of the building value and 1.5 per thousand of the land value respectively. They yielded 12.1 million kroner, of which about 5 millions were from Ejendomsskyld and about 7 millions from Grundskyld. A tax has also been imposed recently on enhanced land values.

Of the other taxes the Income Tax, with a yield of 83 million kroner, is the most important. It is divided into a tax upon personal income and a tax upon the profits of corporations. The ordinary income tax upon persons is assessed according to a scale whereby the first 500 kroner of the assessable income pays  $\frac{1}{2}$  per cent., the following portions of the income gradually higher percentages, so that the portion exceeding one million kroner pays 25 per cent. The law gives a deduction free of tax for the taxpayer himself — twice as high an amount for family providers as for non-providers — and for children. The corporation tax is assessed upon that portion of the profits of the company which exceeds five per cent. of the capital. The rates rise from 7 per cent. to a little over 15 per cent., according to the size of the profits in proportion to the capital. This tax represents a double taxation, as dividends and free shares are also taxed on the shareholders. The amount of 83 million kroner referred to includes 8 million kroner levied as extra taxation on account of the crisis.

The Property Tax has a scale which rises from 0.65 per thousand to 16 per thousand. It is only imposed upon persons and foreign companies and yields a total of 37 million kroner.

The stamp tax is collected through the use of stamps and stamped document forms, and this tax is imposed upon most documents. The rates are  $\frac{1}{5}$ , 2 and 5 per thousand. It yields about 15.3 million kroner. A special stamp tax, which yields about 1.5 mill. kroner, is connected with the transfer of shares (Exchange Tax).

The Legacy Duty, the yield from which is posted to the credit of the Capital Account, is solely collected on the inherited portions of estates and the scale rises with the size of the legacy and the degree of kindred, legacies to children being exempt

when the share is less than 2,000 kroner, but taxed to the extent of 13 per cent. on that part that exceeds 1 million kroner, while for entirely unrelated legatees the duty rises correspondingly from 12 to 32 per cent. This tax brings in 14.4 million kroner. A temporary increase of the scale has brought in 3.2 million kroner more.

Of taxes on consumption the Customs Duties are the most important. The duties are, as a rule, specific, ad valorem duties being charged in a small number of cases only, and the industries of the country derive on the whole only a small amount of protection from them. The revenue from this source is shown at about 105 million kroner. Then comes the Spirit Tax with about 28 millions. This tax is high, the rate being Kr. 17.60 per litre of 100 per cent. alcohol.

The Beer Tax varies according to the alcoholic strength from Kr. 5.70 to 43 kroner per hectolitre, and yields in all about 38 million kroner a tax on all sales of alcoholic liquor gives the State a revenue of 8.3 million kroner. The tax on Cigars, Cigarillos and Cigarettes brought in 39.6 million kroner in 1935/36. The tax on cigars as from 1929 is 10—50 per cent. of the value when sold to retailers, and on cigarillos 20—25 per cent. of the value. The cigarette tax varies according to value from 185 to 1000 Øre per hundred.

The Entertainments Tax is 10 per cent. of the price of tickets at concerts, 20 per cent. for theatrical performances proper, and 40 per cent. for other entertainments. Among the latter picture houses form the principal element. Of the Entertainments Tax two-thirds (about 6.2 million kroner) go to the State, the other third going to the local authority within whose area the entertainment is given.

Of the other taxes on consumption there are the Beet Sugar Tax which, in conjunction with a supplementary tax, brings in about 15 million kroner, and the Sales Tax on chocolate and confectionery about 13 millions. The tax on coffee substitutes yields a revenue of 4.6 million kroner, and an extra tax levied on petrol yields 18 million kroner, whilst the revenue from the ordinary petrol tax and the tax on motor vehicles, amounting in all to 54 million kroner, accrues mainly to the Communes either directly or in the form of subsidies for road construction and repairs.

The next big group of revenues includes fees and perquisites, etc. which yield in all about 11 million kroner, 5.4 millions of which are received from law charges. Of the other State revenues, about 7 million kroner in all, may be mentioned the income from the State lottery, *Klasselotteriet*, which returns a fixed sum of about 3.2 million kroner, and fines and penalties of about 0.7 million kroner. Finally, the statutory payment by the National Bank amounted to 0.7 million kroner.

As already stated, the current receipts mentioned give the State a total revenue of about 419 million kroner.

The current expenditure amounts to 405 million kroner. The distribution of the total is shown in the following summary:

	Mill. kr.	Percentage of total
Civil List, Parliament and Foreign Office...	9.6	2.4
Defence.....	46.7	11.5
Internal administration.....	44.2	10.9
Expenditure connected with Trade and Industry .....	38.9	9.6
Social Purposes.....	137.5	33.9
Public Education .....	62.8	15.5
Health.....	14.9	3.7
Miscellaneous .....	50.8	12.5
<b>Total...</b>	<b>405.4</b>	<b>100.0</b>

The State expenditure on interest is, as already stated, shown as an expense item for the various Public Undertakings that make use of real estate and plant. The total State expenditure for interest on debt amounts to 73 million kroner (not included in the above summary).

A perusal of the various items of expenditure will show that, as formerly, the sum of 1,000,000 kroner is fixed as the amount of the Civil List, while a further 143,000 kroner has been granted to members of the Royal Family.

Parliament spends 2.2 million kroner. The Foreign Office accounts in all for 6.3 millions, of which 0.9 million goes towards the Ministry and 4.4 millions to Danish Legations and Consulates abroad.

The expenditure on National Defence is in all 47 million kroner, or about 11.5 per cent. of all expenditure. The army estimates amount to about 31 millions and the navy about

14 millions. Further, the cost of recruiting, billeting, etc., which are accounted for under the estimates of the Home Office, amount to 1.5 millions.

Among the items of expenditure concerning Internal Administration may be mentioned the Department for the Administration of Justice and State Prisons, which spends 19 million kroner, and the Collection of Taxes, 17 millions. Under the items concerning Trade and Industry there are agriculture and forestry, with about 10 million kroner, fisheries 1.2 million, handicrafts and industry 4.2 millions, commerce 0.5 million, and shipping 1.6 millions. Further, there is public works and traffic expenditure with 14.7 millions, as well as pilots, lights, buoys and lifeboat stations with 4.2 million kroner.

Among the social expenditure there are Old Age Pensions, as well as health and invalidity insurance to which the contribution of the State is 45 and 25 million kroner respectively; the care of the abnormal, which costs the State 21 million kroner, and unemployment, the cost of which is 24 millions. Regarding the details of these questions the section on Social Conditions will give further information.

The expenditure on Public Education amounts to about 63 million kroner, an amount that is, broadly speaking, divided with one half to the State grants to municipal schools and the public elementary schools, the other half going towards higher education and for scientific purposes, etc. The expenditure on Public Health, under which come especially the campaign against consumption (3.5 millions) and measures against epidemics (2.6 million) is in all 14.9 million kroner.

Pensions cost just over 37 million kroner.

#### CAPITAL ACCOUNT

On this account the sum of 168 million kroner is shown as revenue from consumption of assets, including the offwritings on property and plant amounting to 15 million kroner, and holdings of securities reduced by 75 million kroner in the course of the year. The total sum also includes legacy duty 14 millions, and repayment on loans granted to various institutions, private persons, etc.

Among the expenditure items may be named 28 million kroner as capital investment in Crown Lands and Public Undertakings, 9 millions for the acquisition of other properties, 31 millions for the reduction of the National Debt, and 33 millions granted as loans to various institutions, private persons, etc.

## STATE ASSETS AND LIABILITIES

The balance sheet as at March 31st, 1936, shows that the assets of the State amount in all to 1,734 million kroner, including holdings of securities and cash 549 million kroner, profit-yielding property and plant (Crown Lands and Public Undertakings) 682 million kroner, and other property and plant 473 million kroner. Furthermore, two special Funds owned by the State for the support of education and science form an asset of 30 million kroner.

Under the heading of liabilities the internal debt is shown at 577 million kroner, and the external debt 643 millions, so that in all the National Debt amounts to 1,220 million kroner. This however does not include the total of Treasury Bonds issued or bank indebtedness, in all 121 million kroner. The national debt in former years was: —

	Total Mill. kr.	Kroner per Capita
March 31st 1914.....	361	126
— 1925.....	1,212	355
— 1930.....	1,355	383
— 1935.....	1,251	339
— 1936.....	1,220	328

From these figures it will be seen that since 1914 the National Debt has increased more than the population, even bearing in mind that the cost of living has been almost doubled. If the Debt is deducted from the value of the State Assets the net wealth of the State as at March 31st, 1936, was 393 million kroner, as compared with 484 millions on March 31st, 1914.

## 2. LOCAL GOVERNMENT

In a municipal respect the country is divided into "urban communes" and "rural communes". The latter are either

County Communes (25 in all), to whom the more general duties are assigned, or Parishes (about 1,300 in all) having to do with purely local affairs. The County Communes exercise a certain supervision over the parishes within their boundaries, particularly as regards the raising of loans.

The urban communes must have the consent of the Home Office to contract loans, and in other respects too they are under the superintendence of this Ministry, although all communes have local self-government powers. The financial year of the communes covers the period from April 1st to March 31st, like that of the State; the last available information refers to the year 1934/35 for the communes, and this forms the basis of the following statement.

#### LOCAL GOVERNMENT ACCOUNTS

The current revenues appear from the summary below:

	Urban Communes Mill. kr.	Rural Communes Mill. kr.	Total Mill. kr.
Revenue from municipal property and public undertakings	101.1	6.6	107.7
Rates.....	34.6	69.1	103.7
Income Tax.....	131.1	60.7	191.8
Other revenues .....	17.8	46.0	63.8
Total current income...	284.6	182.4	467.0

Thus the revenues amount in all to 467 million kroner, of which 22 per cent. is derived from rates and 41 per cent. from income taxes.

When making the assessment the actual income of the taxpayer may be increased up to 50, 35, 25 and 15 per cent. respectively, according to whether it is derived from capital, real estate, annuitres, etc. and from pension or the income of persons entitled to a pension. Then, after an allowance is deducted for every child under 15 years, the income thus taxable may according to the circumstances of each taxpayer be increased by 50 per cent. or reduced by a maximum of 70 per cent.; taking them all round, this is done according to the size of the income, the large incomes being increased and the small ones reduced. On the total income amount thus arrived at an amount is assessed by such a percentage as, in combination



with the other revenues of the commune, is necessary to cover the estimated expenditure. By this means the tax — though the percentage is the same for all tax-payers — becomes progressive. In Copenhagen and Frederiksberg, however, the income tax, according to a special regulation to this effect, is levied according to a progressive scale fixed by law.

Up to 1925/26 the rates in the towns had the character of a ground tax and a property tax (sites and buildings), and in the rural communes in addition that of a "Hartkorn" tax (tax upon land according to its fertility). As from 1926/27 all communes now levy a ground tax in proportion to the value of the land and a property tax in proportion to the value of the buildings. According to the law the rate of property tax in all communes, with the exception of the counties, must form three-fourths of the rate of land tax.

The item "other revenues" includes various taxes on motor vehicles which bring in a total sum of 37 million kroner.

The current expenditure, is as follows:

	Urban Communes Mill. kr.	Rural Communes Mill. kr.	Total Mill. kr.
Administration.....	14.8	8.8	23.6
Public Assistance .....	54.5	25.5	80.0
Old Age Pensions.....	16.0	15.3	31.3
Health and Invalidity Insurance	1.6	6.6	8.2
Unemployment .....	10.6	7.1	17.7
Other Social Purposes.....	2.0	1.9	3.9
Public Education .....	32.8	25.3	58.1
Health.....	16.9	11.8	28.7
Adm. of Justice and Police ...	13.5	4.0	17.5
Roads and Sewers .....	13.6	55.0	68.6
Interest on Debt .....	40.5	10.9	51.4
Miscellaneous.....	22.3	13.1	35.4
Total...	239.1	185.3	424.4

About 24 million kroner, or 5.6 per cent. of all expenditure, is spent upon administration. The country communes are administered at proportionately less cost than the town communes, as in their case it is, to a certain extent, incumbent on the citizens as a civic duty to perform work connected with the administration without remuneration.

The social expenditure amounts to 141 million kroner, or

one third of the expenditure as a whole. Public assistance is almost entirely paid by the communes, and costs 80 million kroner. Old age pensions are paid partly by the State and partly by the communes, the share of the latter amounting to 31 million kroner. The expenditure in respect of unemployment is 18 million kroner.

One of the largest items of expenditure in the accounts is the cost of Public Education — 58 million kroner. Combined with the expenditure of the State for education and science — about 63 million kroner — the sum spent on this account is thus comparatively very large. For Public Health, which includes hospitals, the communes spend 29 millions, towards the administration of justice and the police 17 millions, roads and sewers 69 millions, and as interest on debt 51 millions.

In 1937 the Rigsdag passed a Bill providing for an inter-communal equalizing fund to assist in equalizing the revenues of less well-situated communes.

#### CAPITAL ACCOUNT, ASSETS AND LIABILITIES

Consumption of assets and loans raised within the financial year 1934/35 may be estimated at about 162 million kroner, and against this must be set expenditure in the form of repayment of debt to an amount of 79 million kroner, and an increase of assets 138 million kroner.

The balance sheets of the communes as at March 31st 1935 show assets to a total amount of 1,584 million kroner, and liabilities 1161 million kroner, so that the net assets of the communes amount to about 423 million kroner. The liabilities in some of the previous years appear below:

	Mill. kr.	Kroner per Capita
March 31st 1914.....	396	139
— 1925.....	950	279
— 1930.....	979	277
— 1935.....	1,161	314

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# AGRICULTURE

## THE AGRICULTURAL AREA

Of Denmark's total area of about 4,293,000 hectares, about 77 per cent. is utilized for agriculture and horticulture, 9 per cent. is timbered, while the greater part of the remainder comprises areas that are useless for cultivation and agriculture.

### Utilization of Areas.

	Total 1000 ha.	Agricultural 1000 ha.	Forest 1000 ha.	Horticulture 1000 ha.
1866.....	3,897	2,488	176	—
1876.....	3,897	2,687	—	20
1907.....	3,897	2,918	324	38
1919.....	3,903	2,905	347	48
1920.....	4,302	3,226	367	50
1929.....	4,293	3,248	391	66

From the year 1866 to 1929 the agricultural and horticultural area was increased by about 800,000 hectares, and the timbered area by about 215,000 ha. These increases may partly be ascribed to the recovery of South Jutland by Denmark (in 1929 the areas under cultivation in South Jutland were 327,000 and 22,000 hectares respectively), and partly to the tilling of heath-land in Jutland.

This extension of the agricultural area has now opened up the possibility of the establishment of numerous new farms, while at the same time, by the division of bigger farms, new openings have been created, and the result is that the number of agricultural estates has been greatly increased.

From 1903 to 1933 the number of farms of at least 0.55 hectares was increased from about 171,000 to 204,000; part of this increase, viz. about 14,000 farms, was the result of South Jutland's re-union with Denmark in 1920; the most marked increase was, however, recorded prior to 1903.

The 204,000 farms are distributed according to size as follows:

			Number		Agricultural Area	
			Total	pCt.	1000 ha	pCt.
0.55 to	3 ha	...	27,893	13.7	52	1.6
3	- 10	- ..	77,784	38.1	472	14.9
10	- 30	- ..	72,352	35.4	1,308	41.2
30	- 60	- ...	21,406	10.5	845	26.6
60	- 120	- ..	3,769	1.8	290	9.1
120	- 240	- .	740	0.4	119	3.8
240 ha and over	.....		287	0.1	90	2.8
Total...			204,231	100.0	3,176	100.0

It will be observed that about 52 per cent. of the farms are of less than 10 ha, though they have no more than 16.5 per cent. of the total agricultural area. The farms of medium size, 10—60 ha, account for the greater part of the area. Only 2.3 per cent. of the farms are of more than 60 ha.

The cause of this great increase in the number of farms is, as already stated, to some degree the extension of the agricultural area; from olden times, however, Danish legislation has taken care to maintain the greatest possible number of independent farms, while in more recent times there have been positive efforts towards the establishment of new farms. With regard to the former it should be added that most of the farms have been and are still protected by a prohibition against incorporation in large farms or concentration into bigger farms, whereas parcelling is allowed, although there is a prohibition against bringing farms down below a certain size by parcelling. Since 1919 there has been a general prohibition against the closing down of any farm without the approval of the Ministry of Agriculture. The positive endeavours for the establishment of new small holdings commenced in 1899, when an Act of Parliament provided for land being placed at the disposal of farm labourers. By later legislation the size of these farms was considerably increased, so much, in fact, that from being a worker's holding it became an independent farm capable of fully employing and supporting a family. Under the Act of 14th May, 1934, which in principle is a continuation of the previous legislation, loans may be granted (subject to certain amendments in a supplementary

Act) of up to 10,000 Kr. for the erection of farm buildings and up to 8,500 Kr. for the purchase of building site and farm land.

Up to 1935, 15,893 farms had been established as follows under these various Small Holdings Acts: —

	Number	State Loan and State Grant Mill. kr.
1900—20.....	9,263	58.0
1920—30.....	5,390	88.0
1930—31.....	401	6.3
1931—32.....	435	7.0
1932—33.....	64	0.9
1933—34.....	54	1.4
1934—35.....	286	4.0
Total 1900—1935...	15,893	165.6

In 1919 three Land Acts were passed, according to which a considerable portion of all glebe lands was to be surrendered for parcelling, while fiefs, entailed estates and fiefments in trust became free estates on surrendering 25—30 per cent. of their capital, and they had to surrender a third of their land for parcelling in return for a compensation. At the same time special regulations were drawn up covering the conditions on which these lands and other land owned by the State may be disposed of.

Farms established on these estates pay no purchase sum for the land, but pay interest to the State on the value of the land as appraised from time to time for the purpose of levying the ground tax.

By the Act of 25th March, 1933 concerning the payment of interest by these small-holders they were given the option of paying interest as hitherto on the capital invested by the State in their farms, as a fixed annual charge, or of making the charge a variable one, the annual amount to be fixed on the basis of the average prices of butter, bacon and barley. These provisions were retained in the aforementioned Act of 14th May, 1934. The farmers, however, hold the estate with all the essential rights of an owner. On the same terms public land may also be disposed of to enlarge existing small holdings.

In accordance with these Acts 5,269 farms have been established, covering in all about 38,400 ha, during the period from 1920 to 1935. Furthermore, for the purpose of enlarging smaller holdings a total of 2,063 parcels with an area of 5,189 ha have been disposed of.

Since 1899 the total of new small holdings established by State grants in pursuance of the various Acts has grown to 21,162.

An overwhelming majority of Danish farms are owned by the farmers themselves. According to statistics drawn up in 1919, only about 7.5 per cent. were leased or tenanted. This figure has since been further reduced by a compulsory commutation of leases. It may be taken that in 1929 94 per cent. of the farms were freehold.

#### UTILIZATION OF THE AGRICULTURAL AREA

When overseas competition in the production of grain began to make itself felt in the latter half of the 19th century, Danish farmers commenced to concentrate on animal husbandry and to take full advantage of the cheap foreign grain, whereas in certain other countries this same foreign grain was regarded as overseas competition calling for the introduction of grain duties.

Since then Danish agriculture has been increasingly adapted to animal husbandry, based upon an intense cultivation of the soil and on the importation of feeding stuffs. The utilization of the area is therefore characterized by the endeavour to cultivate the greatest possible quantity of feeding stuffs and, to a great extent, cattle feed which, like fodder beets and green fodder, can be used to the greatest advantage supplemented with imported oil-cake. The growing of breadcorn and other products for direct consumption or for industrial purposes occupies only a secondary place.

The development in the direction of intensive farming has, with regard to the utilization of the area under the plough, one very striking result, namely the extension of the potato and root-crop areas, while the fallow lands and grass fields have been reduced. The employment of the tilled area in

1936 (in the rural districts) appears from the following summary: —

	Tilled area in 1936 1000 ha
Grain.....	1,323
Seed.....	39
Potatoes and root-crops .....	514
Fallow.....	41
Clover and grass land.....	724
<b>Total...</b>	<b>2,641</b>

The growing of grain is affected by the circumstance that the principal aim is to obtain grain for livestock feed. This appears from the fact that such a considerable area is sown with mixed grain (mostly barley and oats together), the crops of which can only be used as fodder. Before the reorganization of production on the lines mentioned above this area was comparatively small.

	The Grain Area in 1936 1000 ha
Wheat.....	119
Rye .....	132
Barley.....	368
Oats.....	377
Mixed grain .....	323
Leguminous plants.....	4
<b>Total...</b>	<b>1,323</b>

The root-crop area is mainly occupied by fodder beets, as the following table shows:—

	Potato and Root-Crop Area 1936 1000 ha
Potatoes .....	75
Beetroot .....	169
Swedes.....	198
Turnips.....	18
Carrots .....	4
Sugar beet .....	49
Chicory root.....	1
<b>Total...</b>	<b>514</b>

Animal husbandry has been especially beneficial to the small and medium sized farms, the consequence being that the utilization of the soil of these farms has been particularly adapted to this production, while at the same time the cultivation of these areas is very intensive.

#### Utilization according to Size of Holding, 1933.

Size of Holding		Grain pCt.	Root crop pCt.	Other crops pCt.	Grazing pCt.	Fallow pCt.	Total pCt.
0.55 to	3 ha.....	43.6	24.5	2.3	28.6	1.0	100.0
3	- 10 - .....	47.5	22.7	0.6	28.0	1.2	100.0
10	- 30 - .....	49.2	20.2	0.6	28.2	1.8	100.0
30	- 60 - .....	51.1	18.6	0.9	27.2	2.2	100.0
60	- 120 - .....	52.9	17.4	1.6	26.3	1.8	100.0
120	- 240 - .....	54.5	17.4	3.7	21.9	2.5	100.0
240 ha	and over.....	53.7	15.6	8.3	18.6	3.8	100.0
Total...		49.9	19.9	1.1	27.3	1.8	100.0

#### LIVE STOCK

The most important branches of production in Danish agriculture are the production of pork and dairy farming, while the production of eggs has also developed into a branch of considerable importance. The quantity of live stock in 1936 (in the rural districts) was as follows: —

	Live Stock <sup>1</sup> 1936
Horses.....	536,000
Cattle.....	3,116,000
of which dairy-cows .....	1,615,000
Pigs .....	3,503,000
Sheep.....	179,000 <sup>2</sup>
Poultry .....	28,568,000 <sup>3</sup>

From 1920 to 1930 the stock of horses fell by about 100,000. In the years 1930—34 the stock numbered about half a million,

<sup>1</sup> Live stock in the urban districts 1933: horses 19,000, cattle 51,000 (of which dairy cows 30,000), pigs 69,000, sheep 4,000, poultry 1,075,000.

<sup>2</sup> 1933.

<sup>3</sup> 1935.



but during the last two years it has again increased, so that the rural districts now have a stock of 536,000.

During the past ten years the stock of cattle has been about 3 million head. More than half of this number are dairy cows.

In the summer of 1936 the number of pigs was about 3.5 millions. In recent years the output to some extent has been governed by the British import restrictions. Before the British quotas came into force the total stock culminated at 5.5 millions in the spring of 1932.

Sheep-farming, which is difficult to combine with intensive farming, is of very little importance nowadays.

Poultry, an important side line for small holders, has increased in number by about 12 per cent. since the last census in 1933.

In proportion to the area there is a very considerable difference in the livestock of large and small farms, as will be seen from the summary below:—

Livestock per 100 ha on Farms of Different Sizes, 1933.

Farmed area		Horses	Cattle		Pigs	Sheep	Poultry
			Total	Cows			
0.55 to	3 ha.....	26	128	97	237	5	3,712
3	- 10 - .....	26	115	77	191	3	1,377
10	- 30 - .....	15	103	58	144	6	639
30	- 60 - .....	13	92	47	119	7	395
60	- 120 - .....	11	81	40	101	6	228
120	- 240 - .....	8	76	41	81	5	128
240 ha.	and over .....	8	70	41	62	4	70
Total...		16	99	56	137	5	662

## THE CROPS

The progress made by Danish agriculture is perhaps best seen in a comparison of the size of the crops in former days and now. In order to ascertain the total extent of all crops, collective calculations have been made for a long number of years showing the equivalent food value of the various crops in comparison with the food value of barley, and these calculations enable the harvest as a whole to be expressed in hektokilos of barley: —

Whole country <sup>1</sup> :	Crop expressed in million hectokilos of barley <sup>1</sup>
1875—79 average .....	27.1
1910—14 — .....	33.5
1915—19 — .....	48.0
1920 .....	53.4
(of which North Slesvig 2,9).	
1921—25 average .....	60.5
1926—29 — .....	74.0
Rural Districts <sup>2</sup> :	
1929—33 average .....	79.4
1934 .....	72.4
1935 .....	82.2
1936 .....	76.5

Thus the total crops have increased by about 200 per cent. during the past sixty years.

As has already been mentioned, the crops are by no means sufficient for the requirements of the live stock. In 1936 the imports of grain and fodder totalled 15.7 million hkg, whereas the fodder value of the country's own crops, including grass and green fodder, in 1936 corresponded to about 103 million hkg.

The crops of the various grains were:—

	1936 Mill. hkg
Wheat .....	3.1
Rye .....	2.0
Barley .....	9.0
Oats .....	8.4
Mixed grain .....	6.3
Total...	28.8

Rye and wheat were utilized in almost equal quantities as bread grain; nevertheless, the greater part of the cereals required for human food is imported, whereas Danish rye and wheat are mainly used for livestock-feed. Normally the other grains, apart from a small quantity used for the manufacture of oatmeal, etc., or for industrial purposes, are used for cattle feed.

<sup>1</sup> Excluding grass and green fodder.

<sup>2</sup> Urban districts 1929 1.2 mill. crop units.

The yield of the root crops is as follows: —

	1936 Mill. hkg
Potatoes .....	12.9
Fodder beets .....	226.8
Sugar beet .....	18.2
Chicory root .....	0.1
Total...	258.0

These figures show that the root crops form a very considerable part of the whole harvest. Converted according to food value into grain tons, the root crops in 1936 amounted to 37 per cent. of the total harvest, grain crops to 54 per cent., including the straw, while 9 per cent. was represented by the hay crop.

The harvest of hay and straw in 1936 was: —

	1936 Mill. hkg
Field hay .....	14.7
Meadow hay .....	4.9
Straw .....	39.8
Total...	59.4

Practically all the straw is used for cattle feeding and acquires considerable value as a supplement to the intensive feeding of cattle with roots and cake meal.

The “fold yield” per hectare of the various important crops appears from the following table:—

	1924/28 average hkg	1929/33 average hkg	1934 hkg	1935 hkg	1936 hkg
Wheat .....	27.7	28.8	30.8	31.6	25.6
Rye .....	15.4	17.2	18.0	18.0	15.1
Barley .....	25.8	28.2	28.1	32.1	24.4
Oats .....	22.0	25.8	25.9	28.3	22.2
Mixed corn .....	22.2	24.4	23.9	25.5	19.6
Potatoes .....	130	163	179	162	170
Beets .....	558	600	497	626	594
Swedes .....	528	567	567	562	596
Sugar beet .....	288	329	219	377	369

## AGRICULTURAL PRODUCTION

Of the products of vegetable cultivation most are utilized by the agricultural industry itself, as already mentioned, as the basis of the animal production. The small and medium-sized farms have to add considerably to their own crops by purchasing grain. This demand can only partly be met by the large farms which are in a position to sell; the remainder has to be imported. As regards agriculture as a whole, there was an import surplus of approximately 1.2 million tons of grain and foodstuffs in 1936, the grain yield within the country aggregating about 2.9 million tons (excluding pulse).

Normally, about three million hkg of the potato crop are used by the population. Only in a few isolated years has it been possible to export to any considerable degree, whereas the industrial use of potatoes for the manufacture of potato flour or spirits has been increasing of late.

The cultivation of sugar beet in 1936 corresponded to an output of sugar of about 216 million kg.

Finally, with regard to vegetable stuffs it ought to be added that large quantities of grass seed and root-crop seed are grown both for export and for home use.

Most weight is, however, attached to animal husbandry which, on the small and medium-sized farms, corresponds to about 86 per cent. of the gross yield of agriculture. The total output of animal products may approximately be summarized for some of the principal commodities: milk, butter, bacon, beef and eggs.

The total output of milk, including what was used for the purpose of cattle raising, in 1935 amounted to about 5,120,000 tons. Of this quantity about 500,000 tons were consumed by the population in the form of new milk, 400,000 tons were utilized by the milk producers themselves, about 125,000 tons in the making of cheese and about 25,000 tons for condensed milk for export. But by far the greater part, about 4,070,000 tons, was used for butter. On an average 23.8 kg. of milk are required for one kilo of butter. The total butter output was 180 million kg. in 1935 and 178 millions in 1934.

The greater part of the butter produced is exported. The home consumption totalled only about 34 million kg. in 1936,

as compared with 35 million kg in 1935. Lately there has been an increase in the butter consumption at the expense of margarine; but even so, the margarine consumption is more than twice that of butter and in 1936 approximated 78 million kg., or about 21 kg. per head of the population.

A total of 4,308,000 pigs were slaughtered at the bacon factories in 1936. In addition there was a small number slaughtered for domestic use, especially among the rural population. And finally, 183,778 live pigs were exported. Thus the total number slaughtered may be estimated at about 4,708,000 pigs, corresponding to an output of about 303 million kg. of bacon, pork fillets, etc. and heads and feet.

Thanks to recent legislation on measures to help in the sales of cattle and meat, it is now possible to state the output more accurately than hitherto. For 1936 it may be estimated that the total output of beef was about 158 million kg., of which 19.1 million kg. was the meat of destroyed animals.

The egg output, calculated on the number of hens, may be estimated at about 109 million kg.

## CO-OPERATION IN AGRICULTURE

If Danish agriculture was able to meet the competition from overseas so quickly, and in fact make use of the imports of cheaper foreign feeding stuffs as the basis of a profitable refining of the produce on turning to animal husbandry, which led agriculture up to greater economic potentiality than the production of grain could have brought about, even when prices were favourable, it was only possible by means of the co-operative system, which was in fact extended precisely for the purpose of carrying through the reorganization of agriculture's forms of production demanded by the crisis. Since then the co-operative system has steadily been developed, and now Danish farms, from the largest to the smallest, are organized in co-operative societies and establishments that stretch over sales and purchases and so to say every branch of production in agriculture itself.

All the various organizations have developed themselves quite independently without intervention by the public and, as regards the co-operative concerns proper, without any

support from the public. They have been carried along entirely by the farming population itself, which would scarcely have been possible had public education not reached such a high stage as it has, thanks to an old and well-developed system of elementary schools and the great number of agricultural schools and "folk high schools", which every year are attended by over 9,000 young men and women, especially of the farming class.

## SOCIETIES FOR THE PROMOTION OF AGRICULTURE IN GENERAL

The farmers' associations, the small holders' associations, and The Royal Agricultural Society (the oldest of the agricultural societies, having been established in 1769), all work for the promotion of the general economic development of agriculture. There are 137 local farmers' associations with 104,000 members, and 1,257 small holders' associations with about 84,000 members. These are both organized into local joint organizations and into the two national organizations: De samvirkende danske Landboforeninger (The Federation of Danish Agricultural Societies) and De samvirkende danske Husmandsforeninger (The Federation of Danish Small Holders' Societies). These two, together with the Federation of Danish Cooperative Societies, have established a joint organization: Landbrugsraadet (The Agricultural Council), the principal object of which is to represent the agricultural interest in its dealings with the Government, with foreign countries and with other Danish industries. The very comprehensive work of these associations for the promotion of animal husbandry and plant cultivation by means of expert advisers, experimental research work, live stock shows, etc., is supported by annual Government grants.

## BREEDING SOCIETIES AND CONTROL SOCIETIES

A large number of breeding societies and control societies have been formed all over the country for the purpose of

promoting the development of live stock by means of rational breeding and rearing. The most important of these societies are those devoted to horse-breeding, cattle-breeding and control work. There are also sheep-breeding and goat-breeding societies, and one especially concerned with pig-breeding, while the co-operative bacon factories also contribute in a large measure to the furtherance of pig-breeding.

There are 203 horse-breeding societies with 275 stallions; calculations made in 1923 showed that about 43 per cent. of foals bred in the whole country were registered by the members of these societies. Of cattle-breeding societies there are 1,210, with about 26,900 members and 1,521 bulls.

The principal object of the control societies is to ascertain the profitableness of the cattle stocks by means of regular examinations of the feeding, milk yield and fat content of the milk of each cow in the stocks of the members and thus work towards the exclusion of unproductive animals and towards increased breeding from especially productive animals. The number of control societies is 1,703 with 53,900 members, representing 723,500 cows, or almost half of the total number of cows in the country.

These societies are at present growing steadily. In their first period they have found their principal support among the large farms, but of late years there has been a marked access of members from among the smaller farmers.

The table below indicates the percentage of foals registered in 1923 in the horse-breeding societies, and the percentage of herds and of cows registered in the breeding and control societies respectively in the various groups of farms: —

Area of farm	Horse-breeding societies: foals registered	Cattle-breeding societies:		Control Societies:	
		Herds	Cows	Herds	Cows
0.55 to 3 ha.....	3.3	3.8	4.4	2.5	3.6
3 - 15 - .....	14.5	12.1	14.7	6.3	8.8
15 - 60 - .....	42.7	23.2	24.4	23.8	30.9
60 - 120 - .....	52.5	17.9	16.9	43.8	51.7
120 - 240 - .....	49.3	11.8	9.7	50.6	56.8
240 ha. and over .....	46.5	5.6	5.1	56.9	57.7
All farms .....	42.9	14.7	18.8	12.9	26.6

## AGRICULTURAL CO-OPERATIVE ENTERPRISES

However important are these societies, caring as they do for joint interests as regards the work of agriculture on each farm, the agricultural co-operative societies are of much greater significance economically, occupying themselves with the refining and disposing of the produce. It is scarcely too much to say that they form the basis of the present system of production of Danish agriculture. The supply-purchasing societies are also of great importance.

Consideration of the following table will give an impression of the part played by these organizations in Danish farming; it shows the percentage of all farms entered in the various organizations in 1923 and the percentage of the total live stock, etc., which they represent: —

	Percentage of total number of farms	Percentage of total live stock etc.
Co-operative dairies .....	90	86 (cows)
—      bacon factories .....	70	75 (pigs)
Local egg-collecting centres .....	22	26 (poultry)
Cattle-export societies .....	11	18 (cattle)
Feeding-stuff societies .....	31	33 (cows)
Co-op. fertilizer societies .....	24	35 (pigs)
		29 (area)

The membership of the organizations in 1935 and the turnover in 1936 were: —

	Local societies	Membership	Turnover Mill. kr.
Co-operative dairies .....	1,404	190,000	570
—      bacon factories ....	60	187,000	440
Egg-collecting centres .....	800	50,000	23
Cattle export societies .....	12	11,000	11
Feeding-stuff societies .....	1,434	92,000	91
Co-op. fertilizer societies .....	1,484	55,000	25

## THE CO-OPERATIVE DAIRIES

The first Danish co-operative dairy was established in 1882; by the time 1890 had arrived there were already about 700, and in 1935 the number was 1,404. Of 204,000 Danish farms, about



190,000 may be taken to be members of co-operative dairies; the membership is highest among the small and medium-sized farms, but only among the really big farms are the majority of farmers not members of these dairies. The following summary for 1923 shows the membership for farms of different sizes: —

Farmed area	Herds pCt.	Cows pCt.
0.55 to 3 ha . . . . .	87.5	88.1
3 - 15 - . . . . .	90.0	90.4
15 - 60 - . . . . .	91.0	90.3
60 - 120 - . . . . .	82.4	80.8
120 - 240 - . . . . .	60.0	48.9
240 ha and over . . . . .	33.3	29.9
All farms . . . . .	89.5	86.2

More than 86 per cent. of the cows are entered in the co-operative dairies, and a corresponding part of the milk and the butter output goes through them.

In 1936 the total turnover was 570 million kroner. The principal product of the co-operative dairies is butter, and about 90 per cent. of the butter exports comes from these dairies. The butter is sold either through a butter export society of which the dairies are members, or by means of direct sales to private exporters. There are eleven co-operative butter exporting societies, comprising 667 dairies with a turnover in 1936 of 167 million kroner.

In addition, the dairies are organized in local dairy societies under provincial societies which again are organized in a national body. These societies work in the interests of dairy farming, specially by means of holding butter sample exhibitions, collecting information on working economy in dairies, and the butter prices obtained; furthermore, by means of the dairy societies and special milk-judging societies everything is done to provide the members with advice as to how the milk should be handled. The purely commercial side of the business, such as the selling of the butter and the purchasing of machinery, etc., is, however, in the hands of the dairies themselves or entrusted to separate organizations established for this purpose.

The co-operative dairies have made it possible for the small farmers to dispose of their comparatively small output of milk at the same price as that obtained by the large farms, and have

enabled Danish farmers to produce a uniform commodity of high quality, with much more stable marketing conditions than would have been obtainable with any other organization of this branch of agricultural production.

### CO-OPERATIVE BACON FACTORIES

It was in 1887 that the first co-operative bacon factory was started. There are now 60, with a total turnover in 1936 of 440 million kroner. The total number of pigs slaughtered in 1935 was about 3.6 millions, corresponding to about 84 per cent. of all pigs killed at all export slaughteries. The exports of bacon and by-products from Denmark in 1936 totalled 179 million kg with a value of 349 million kroner.

In 1923 the co-operative factories represented 70 per cent. of the pig herds and 75 per cent. of the total stock. Since then the numbers have grown. The membership of farms of various sizes will be seen from the summary below, the figures being those of 1923: —

Farmed area		Membership of Co-operative Bacon Factories	
		Herds of Pigs pCt.	Pigs pCt.
0.55 to	3 ha.....	53.8	60.3
3	- 15 - .....	70.3	75.3
15	- 60 - .....	74.6	78.4
60	- 120 - .....	67.8	68.7
120	- 240 - .....	57.0	56.5
240 ha and over.....		40.6	55.9
Total...		69.4	75.4

A number of the co-operative bacon factories have organized the sales of their bacon by means of a joint Sales Company, the Danish Bacon Company in London, and all the factories are organized in The Federation of Danish Co-operative Bacon Factories for the protection of their joint interests.

### CO-OPERATIVE EGG EXPORTING

Some of the co-operative bacon factories have taken up the sale of eggs as a part of their business, but organized it as a

separate co-operative society with local egg-collecting centres as a basis. Otherwise the co-operative movement in this respect is concentrated in the "Danish Farmers' Co-operative Egg-Export Association", which has about 50,000 members. The total turnover of the latter co-operative society in 1936 was 23 million kroner.

In 1923 about 22 per cent. of the poultry keepers and 26 per cent. of the poultry stock of the country were members of the local centres under this society or under the egg-exporting business of the co-operative bacon factories. Membership is highest among the small farms: —

Farmed area	In Egg-collecting Centres	
	Poultry farms	Hens
	pCt.	pCt.
0.55 to 3 ha .....	22.7	23.7
3 - 15 - .....	21.0	25.3
15 - 60 - .....	21.9	26.2
60 - 120 - .....	19.1	22.3
120 - 240 - .....	15.9	17.1
240 ha and over.....	16.7	25.5
All farms .....	21.5	25.9

## CO-OPERATIVE POULTRY SLAUGHTERIES

A new branch of the co-operative movement is represented by the co-operative poultry slaughteries, of which there are four, and these have joined together into a society: "The Federation of Danish Co-operative Poultry Slaughteries" for the safeguarding of their mutual interests.

Denmark's total exports of killed poultry in 1936 were 2.9 million kg., to a value of 5.0 million kr. In addition to the four establishments mentioned there are about ten export poultry-slaughteries (companies and private firms).

## CATTLE EXPORTING SOCIETIES

To a certain extent the exporting of cattle has also been organized on a co-operative basis. In 1935 there were in all 12 societies, with 11,000 members, and the turnover in 1936 was about 11 million kroner.

The medium-sized farms are most strongly represented in these societies: —

Farmed area	In Cattle-exporting Herds of Cattle pCt.	Societies 1923 Cattle pCt.
0.55 to 3 ha . . . . .	3.0	4.4
3 - 15 - . . . . .	7.4	11.6
15 - 60 - . . . . .	17.9	20.8
60 - 120 - . . . . .	17.6	19.0
120 - 240 - . . . . .	14.3	14.7
240 ha and over . . . . .	15.3	16.7
All farms . . . . .	11.2	17.6

## DANISH AGRICULTURAL SOCIETIES' SEED SUPPLIES

In 1916 a co-operative society of seed growers was formed for marketing seed and also with the purpose of controlling and guaranteeing the quality of seeds sold. The number of members — most of them large-scale farmers — is about 4,200, and in 1936 the turnover was 7.0 million kr. A large part of the sales of seed is managed through the Co-operative Wholesale Society of Denmark.

## PURCHASING SOCIETIES

To a great extent the purchasing of grain, feeding-stuffs and artificial manure is organized on a co-operative basis, about 44 per cent. of the imports of feeding-stuffs and 37 per cent. of the artificial manure imported going through the co-operative societies. The feeding-stuff societies are organized in four large bodies: The Jutland Co-operative Feeding-Stuff Society, the Funen ditto, the Islands' Co-operative Society for the Purchase of Feeding-Stuffs, and the Lolland-Falster Co-operative Feeding-Stuff Society. Their total turnover in 1936 was about 91 million kroner.

The Danish Co-operative Fertilizer Purchasing Society was formed in 1916, whereas in former days the feeding-stuff societies had to some extent attended to the purchase of manure themselves. The society, which covers the whole country, had 1,484 local societies in 1935 with about 55,000 members. In 1936 the turnover was 25 million kroner, representing about 52 per cent. of the total imports of fertilizers.

The membership of these various societies in 1923 will be seen from the following table: —

Farmed area	In Feeding-Stuff Societies		In Fertilizer Societies	
	Farms pCt.	Cows pCt.	Farms pCt.	Area pCt.
0.55 to 3 ha . . . . .	18.4	23.1	9.0	10.5
3 - 15 - . . . . .	31.4	34.9	22.5	24.4
15 - 60 - . . . . .	37.8	38.3	34.6	34.7
60 - 120 - . . . . .	15.3	24.2	26.2	25.1
120 - 240 - . . . . .	10.0	6.0	10.6	9.9
240 and over . . . . .	1.4	2.0	4.2	5.3
All farms . . . . .	31.2	33.4	24.3	28.8

In the ordinary household co-operative movement too it is the farmers that form the main body of members in contrast to what is the case in most other countries; and, as mentioned previously, with regard to the sale and purchase of seeds a co-operation has been set up between agriculture's sales societies and the ordinary co-operative societies, to their mutual advantage.

In 1935 there were 1,850 co-operative consumer's societies with a membership of 358,000 and a turnover in 1936 of 305 million kroner. Practically all these societies are members of the two joint societies, the largest being the Joint Society of Denmark's Consumers' Societies, Copenhagen, with a sales turnover of 193 million kroner in 1936. Besides these societies, certain others may be members of the Joint Society, such as co-operative bakeries.

The other society is the Ringkøbing County Shopping Society, Ringkøbing, which has 70 local societies and a turnover of about 3.6 million kroner.

All the co-operative enterprises of agriculture, and the Joint Societies for the co-operative societies, are members of the Federation of Danish Co-operative Societies, which watches over their joint interests and publishes a co-operative journal.

## THE FISHERIES

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From very early times the favourable natural conditions provided by the extensive coastline of Denmark, with its fjords and sounds, have been utilized by the population. For long periods in the Middle Ages, and partly also during some of the later centuries, the herring fisheries in the Sound and Limfjord, had been of great importance to the country, both on account of the fish itself and on account of the busy commercial traffic it gave rise to as long as the fisheries prospered. Otherwise the Danish sea fisheries were mostly of local importance only until well into the nineteenth century, and in fact it is only within the last thirty to forty years that they developed into an industry of any considerable dimensions; a direct cause has been the improved means of communication and the consequently increased possibilities of marketing, combined with improved methods of catching the fish, especially the introduction of motor power and the use of the Danish seine from bigger vessels capable of going farther out to sea.

All Danish waters: the fjords, the coastal waters, the Baltic, the Cattegat, the Skagerak, and the eastern part of the North Sea, are comparatively shallow. The bottom, which mostly consists of sand or silt flats, slopes gradually from the shore to a depth of 50 to 80 metres. Greater depths are of rare occurrence and only in isolated localities (the Skagerak). The tide is highest on the North Sea coast, but even there it only amounts to 1 to 1.5 metres and decreases with the distance from the open sea.

As a natural consequence of these conditions the Danish fishing industry has in time taken the form of both coast fishing and sea-going fishing, based chiefly on the use of seines, stationary gear (stake-nets and traps), drift-nets, and so on.

*Coast fishing* (mostly for cod, plaice, eel, herring and mackerel) is pursued both with stationary material (traps, stake-nets, etc.) and various kinds of seines, drift-nets and hooks.

Altogether in 1935 about 3,500 small motor boats, about 1,700 sail-boats, and about 7,600 rowing boats etc. were employed in coast fishing.

*Sea fishing* (for plaice, haddock and cod) is carried on with the Danish seine from larger vessels, almost invariably combined sail-and-motor boats. In 1935 the number was:—

	Tons gross 5—15	Tons gross 15—25	Tons gross 25—55	Tons gross 55—90
Number (approximate)...	2,200	390	400	5

Taking each tenth year from 1908, the *total yield* of the Danish sea fisheries was, in million kroner:—

	1908	1918	1928	1935
North Sea.....	2.3	12.0	15.2	17.4
Limfjord .....	1.7	3.0	2.4	2.1
Inner waters (east and south of The Scaw).....	9.2	26.7	19.1	20.0
<b>Total...</b>	<b>13.2</b>	<b>41.7</b>	<b>36.7</b>	<b>39.5</b>

whereas in 1918, 1928 and 1935 the quantitative yield was 63, 95 and 87 million kilos respectively.

The most important fish are plaice, cod, haddock, eel, herring and mackerel. Of the fish caught in the North Sea, plaice, big cod and haddock form the chief part, while the fisheries of the inner waters principally yield plaice, cod (small and medium-sized), eels, herrings and mackerel.

Compared with the sea fisheries, the *fresh water fisheries* are of minor importance, though quite considerable quantities of fresh-water fish, chiefly eel, trout, especially pond-bred trout, and pike, are exported.

The following table shows the approximate number of persons engaged in sea fishing:—

	1895	1904	1914	1935
Regularly engaged . . . . .	7,300	10,400	11,400	13,383
Occasionally engaged . . . . .	5,800	6,300	6,250	5,880
Total . . .	13,100	16,700	17,650	19,263

To these figures must be added a considerable number of persons indirectly connected with the fishing trade such as fish merchants, net makers, boat builders, motor manufacturers, etc.

The value of the vessels and gear employed in the fishing industry in 1935 was 39.6 and 17.4 million kroner respectively.

The extent to which each of the various types of vessel is employed is seen from the following table:—

Motor vessels . . . . .	6,450
Sail-boats . . . . .	1,700
Rowing boats . . . . .	7,600

As has been mentioned, nearly all the sea-going vessels are combined sail and motor boats up to 90 tons gross. The introduction of this type of vessel constitutes the most important change in the methods employed since the nineties. The increasing employment of motor vessels is illustrated by the figures given below:—

1895	1900	1905	1910	1915	1920	1923	1929	1935
0	200	750	2,000	3,500	4,870	5,170	5,620	6,450

Most of the motors are of Danish make. In the vessels of less than five tons gross they vary from 2 to 10 h.p., while in the larger vessels most engines are between 10 and 150 h.p. In 1935 there were 490 engines of more than 50 h.p. in use. A few high pressure engines have come into use since 1927.

The motors are used both for propulsion and for working the winches by which the gear is operated. The engine is generally placed in the stern immediately in front of the helmsman, from which place it is easily controlled.

The Danish motors all combine simplicity of construction with great reliability; they are economical to run and easy to operate, and can be tended by the fishermen themselves, no



special training being required as a rule. Sails are still carried and supply an important part of the propelling power; but the motors are to an increasing degree assuming the character of the principal means of propulsion.

Only few vessels are owned by shipping companies and manned by paid crews. In many cases the fishermen work either independently or in small syndicates, usually consisting of from two to five men who buy and work their boats and gear between them and share the profits.

In order to command a sea-going vessel a fisherman must have passed a comparatively easy examination in navigation. Courses and examinations are held at schools of navigation authorized by the Government.

The principal gear used for salt-water fishing is the *Danish Seine* ("Snurrevaad"). This specifically Danish method is especially adapted to local conditions. It was invented in the remote past, and was for many years used in the Limfjord only. It was not until the seventies and the eighties that it was adopted by the Cattegat and North Sea fishermen. It is now of the greatest importance to the Danish fishing industry, and the development of the Esbjerg fish trade may be ascribed to its adoption.

During recent years the fishermen of other countries have commenced to use the Danish seine; the special technique of this method of fishing is, however, difficult to acquire, while on the other hand the full benefit of the seine can only be had under conditions similar to those prevailing in Danish waters.

Like some of the other branches of the Danish fishing industry, the catching of *flatfish* — especially *plaice* — is based on the sale of the fish while still alive. To this trade the Danish seine is especially adapted. In contradistinction to other gear, as for instance the otter trawl, the use of which is not allowed in Danish territorial waters, it passes lightly over the sea bottom in short and comparatively slow hauls; it does not treat the catch roughly, and it does not reduce the viability of the fish caught. These are placed in a well built into the boat, and are either landed direct or sold to the vessels of the fish buyers — large motor smacks of 20 to 50 tons gross, furnished with big wells in which the fish

are taken to one of the large ports, where they are kept alive in big well-boxes till they can be sold for domestic consumption or export. Many of the bigger North Sea vessels store the fish in ice in the hold.

Both plaice and other flatfish are fished in all Danish waters, but the North Sea gives much the greater yield (about 14,000 tons out of a total of 20,000 tons in 1935).

The biggest quantities of *codfish* are caught in the Cattegat and the Belts. The catch, which consists of small and medium-sized fish, is mostly sold alive, though part of it is killed and packed in ice or filleted.

The codfish caught in the North Sea is bigger as a rule. The catch is gutted and packed in ice and is mostly exported. Only very small quantities are dried. This fish is consumed fresh in Denmark and abroad.

*Haddock* are almost solely caught in the North Sea, and are gutted and packed in ice on board the fishing vessels, the greater part of the catch being exported. At present, however, haddocks are not nearly so numerous as they were formerly. Much energy and stricter control are devoted to improving the methods of treatment and to producing fresh fish of the highest quality, an end to which the employment of the Danish seine is particularly suitable.

The centre of the *herring* fishery is the southern part of the Cattegat, the Belts, and the Sound. The yield is subject to considerable fluctuations and, during the last few years, has been only half of that of earlier periods. The catch is landed fresh and is transported either packed in ice or strewn with salt, and about half of it is exported — like all Danish fish in fresh condition. Large quantities are smoked, especially on the island of B  rholm and in South Jutland, whence very good qualities are exported. Of late years a canning industry has grown up rapidly with herrings and other fishes, and also shrimps and lobsters, as the raw material.

The *total yield of the Danish fisheries* in 1935 was about 87 million kilogrammes, with a value of about 40 million kroner.

The quantities of the most important fishes caught were as follows:—

	Tons	Million kroner
Plaice.....	19,400	15.7
Haddock.....	1,800	1.0
Cod .....	21,100	4.6
Herrings .....	16,000	3.7
Eels .....	4,100	5.6
Mackerel .....	4,300	1.0

To these must be added the value of 1.3 million oysters sold from the Limfjord during the year (about 0.5 million kroner).

The *quantitative yield* during recent years is about 80 to 90 per cent. higher than during the years around 1900, whereas the *value* has increased from 8 million kroner in 1890—1900 to 17—18 million kroner in 1912—13 and 40 millions in 1935.

Of the total catch in 1935 (about 87 million kilos), about 50 million kilos were exported, mostly fresh, ice-packed or live. The imports totalled about 1.2 million kilos of salt, smoked or canned fish.

The inner waters of Denmark are well supplied with small harbours and a number of bigger ones, either ordinary traffic ports with extensions for the fish trade, or fish harbours alone. On the North Sea coast, on the other hand, there has hitherto been only one harbour, at Esbjerg, but recently the Hirtshals harbour has been completed, and at Hanstholm another is at present in course of construction. In addition, Thyborøn Canal and Hvide Sande with their harbours form centres of the fisheries on that part of the coast, while breakwaters have been built at the fishing villages at the most exposed parts of the open coast.

In all the largest harbours the vessels are moored at the piers, and the harbour facilities include storage space and ice houses. All larger harbours are in direct communication with the railways and numerous auto-transport routes. Fresh fish is forwarded packed in ice in boxes of 30 to 70 kilos gutted or alive (plaice and eels).

At all the larger fishing ports public fish auctions are held for the wholesale disposal of freshly caught fish.

The Government supports the fishing industry in various ways. Loans at a low rate of interest are granted through the "Fiskeribanken" to individual fishermen and to associations of fishermen for the acquisition of boats, implements, etc.,

while an annual subsidy is granted to the Danish Fishermen's Association ("Dansk Fiskeriforening") and the West Jutland Fishermen's Association; the Government also supports various fishing schools, signal stations, etc., and endows research work connected with the fishing industry.

The fisheries are protected by an Act of March 31, 1931, and by various bye-laws forbidding the landing of fish under a certain size, etc., as well as the employment of certain implements and methods of fishing in various coastal waters.

The supervision of the fisheries is in the hands of the so-called Fisheries Directorate, which comes under the Ministry of Agriculture and Fisheries. The Directorate has under it the Fisheries Control, a separate fisheries' policing department with the same authority as the other police in the country, and with the necessary staff and material at its disposal for the carrying out of its duties.

The head of the Directorate is the Director of Fisheries. An annual Report containing statistics and other information relating to the fisheries is prepared by the Directorate.

The Danish fishermen are mostly members of local fishermen's associations, of which there are about 200. The majority of these local associations are affiliated with the two main bodies, The Danish Fishermen's Association, Copenhagen, and The West Jutland Fishermen's Association, Esbjerg, representing the fishermen in their dealings with the public and the authorities. The Danish Freshwater Fisheries Association ("Dansk Ferskvandsfiskeriforening") occupies a corresponding position as regards the freshwater fishing industry.

In various places the fishermen have formed co-operative fish-marketing associations for the disposal of the fish in Denmark or abroad, and purchasing societies for the acquisition of gear, etc. Furthermore, there are credit societies and various mutual societies for the insurance of boats.

Finally, the "Insurance Association of Danish Fishermen and Sailors" may be mentioned, an association which receives considerable support from the public funds. In contradistinction to the other societies mentioned above, membership is compulsory for all persons engaged in the fishing industry.

## THE FISHING INDUSTRY OF THE FAROE ISLANDS

A considerable fishing trade is carried on from the Faroe Islands, there being both *coast fishing* and, with larger vessels, deep-sea fishing. Most of these vessels are of 40—100 tons gross, and about forty-five from 100 to 280 tons gross, the greater part being fitted with motors.

The cutters engaged in this trade all use the line for cod-fish and haddock on the banks near the islands and, during spring and summer, off the coast of Iceland and Greenland. The catch is salted on board and goes through further treatment (washing, re-salting, and drying) when landed.

The larger motor boats also work with hand or long lines; a few boats use the seine but they all land their catch fresh. Most of this catch is salted, some is sold for export in fresh condition. The smaller boats mostly work for the personal supply of the owner with small cod, coalfish, etc., which form a very important article of diet on the islands.

Owing to the special nature of the Faroe fishing trade the crews of the bigger vessels are large (12—30), but the method employed in catching the fish and the care with which it is subsequently handled make it possible to reach a very high standard of quality in the final product (dried codfish).

The fishing fleet in 1935 consisted of 175 vessels, many of them sloops of earlier English design with a burthen of about 75 tons. Forty-five of these vessels are fairly large, some of them newly-built schooners. There were also 130 motor boats and about 1500 rowing boats. During the Iceland fishing season the crews of the 150 odd vessels employed there totalled about 3,400, whilst 2,300 men on 75 ships were engaged in line fishing off West Greenland that summer. Some vessels also fished for halibut.

The total yield of the fishing with these vessels during the same year was about 18,000 tons of dry-salted fish, about two-thirds derived from the Iceland fisheries (7,000 tons from Greenland), the home fisheries having played a subordinate part in recent years. The value of the catch was estimated at 5.5 million kroner.

One steam trawler was purchased from England in 1933, but here again the catch was salted on board.

Ca'ing whales (*Globiocephalus melas*) are caught in large numbers almost every year, often several hundreds at a time. The meat is stored by the local population and constitutes an important article of diet during winter.

Whaling proper is carried on from one station only at present, with an annual total of 80 to 100 whales.

## THE GREENLAND FISHERIES

While the Greenland fisheries were formerly of quite secondary significance to the native population, there has been a gradual development during the past twenty years, and now the trade is one of considerable value. Fishing is pursued both in the fjords and at various places along the west coast of Greenland, while there is also line fishing farther out to sea.

The catch comprises cod, halibut, and Greenland halibut especially, and the greater part is prepared and either salted or tinned for export. The fishing season, however, is short, lasting only a few months, and the quantity caught, especially cod, varies greatly in the different coastal districts.

During 1935 Faroese "cutters" and vessels belonging to various foreign countries were engaged in line and trawl fishing for cod and halibut on the banks off the west coast. Faroese vessels, among others, have since 1925 fished the uncommonly large numbers of cod at present to be found in the waters off the west coast, while Norwegian and English fishing expeditions with line and trawl especially exploit the stock of halibut there.

## HANDICRAFTS AND INDUSTRY

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Although Denmark has not within her boundaries the most important raw materials such as iron, coal, etc., and though, with one single exception, she has not created large industrial enterprises based on the manufacturing of imported colonial raw materials, the last generations have seen the formation of very considerable Danish industries, which on the whole not only supply the demands of the home market, but in addition produce a variety of export articles which find a market all over the world.

Practically one-third of the people in Denmark now earn their living by handicrafts or industries — almost as many as those who live by agriculture. The figures below give a rough idea of how the handicrafts and industries have developed in part of the period during which the industries proper have been of any importance to Denmark. The figures are compiled from the censuses of handicrafts and industries taken in 1897, 1906, 1914, 1925 and 1935.

	1897	1906	1914	1925	1935
Number of establishments .	77,256	85,118	82,494	89,189	102,032
Total employees . . . . .	272,456	315,219	350,194	392,475	462,361
Of which workmen . . . . .	178,442	206,592	227,458	269,830	317,395
Works with mechanical power	3,856	6,730	15,579	26,332	43,414
Horse-power of machinery ..	48,060	113,270	229,843	437,616	651,138

From 1897 to 1935 the number of persons employed in these occupations rose considerably more than the average increase of the population. A still more signal proof of the increase of the capacity of production is, however, provided by the increased employment of mechanical power during the same period. It is also characteristic of the same period that in many trades there has been a movement from handicraft to industry, a movement that is also shown by the table, as the number of establishments has increased only slightly in comparison with the other figures given.

The widespread growth of the number of establishments using mechanical power is principally due to the circumstance that so many small works have installed internal-combustion engines and especially electro-motors; the great extension in the use of the latter has been made possible by the building of electricity works and power stations all over the country.

The gradual movement from small to large establishments is shown by the following table:

Number of establishments	1906	1914	1925	1935
Without employees .....	47,117	42,115	44,104	51,234
with 1 to 5 employees .....	32,104	34,014	38,033	42,252
— 6 - 20 — .....	4,448	4,779	5,259	6,305
— 21 - 100 — .....	1,231	1,322	1,476	1,860
over 100 — .....	218	264	317	381
Total...	85,118	82,494	89,189	102,032

In 1935 about one half of all these establishments were still without paid workers, and the number employing from 1—5 workers was nearly as great, while only 381 employed over 100.

Based upon the industrial census of 1935 the following tables give a survey of the groups of principal handicrafts and industries.

<i>I. Occupation Groups:</i>	No. of establishments	No. of persons employed		Estab'ts with mechanical power	Mechanical power h. p.
		Total	Of which workmen		
Preparation of foodstuffs ..	15,849	75,736	49,849	11,342	191,535
Textiles .....	975	19,865	16,381	445	22,318
Clothing .....	11,745	49,740	34,968	1,018	5,484
Earth works & building...	18,700	79,078	56,747	4,048	51,199
Wood goods .....	10,648	31,454	19,703	5,158	52,419
Leather & leather goods...	7,805	17,715	9,195	3,465	10,711
Stone, earthen & glass ware	2,343	22,427	18,382	1,171	78,422
Metal .....	17,608	95,427	69,516	9,271	121,063
Chemicals etc. ....	3,025	27,128	17,403	2,233	79,726
Paper .....	210	5,823	4,706	130	20,083
Printing, bookbinding etc. .	2,404	14,859	10,119	1,110	11,621
Laundries, cleaning works etc. ....	10,720	23,109	10,426	4,023	6,557
Total...	102,032	462,361	317,395	43,414	651,138

The group "Earth-works and building", which comprises a particularly large number of trades, has the greatest number



of establishments (19,000) whereas the metal industry employs the greatest number of employees (95,000). The group "Preparation of foodstuffs" has the largest number of establishments using mechanical power (11,000) and the machine power belonging to this group, 192,000 h.p., is the highest among the main groups.

The distribution according to sex of the hands employed in handicrafts and industry was in 1935 :

	Total men and women	Of which women total	pCt.
Total employed .....	462,361	107,042	23.2
Of which industrial workers...	317,395	about 85,000	about 27

It will be seen that females number about one-fourth of the total of actual workers. They are of greater importance in the large establishments than in the small ones.

As to the production of the industries proper the latest information is contained in the annual statistics, which comprise almost all branches of industry with the exception of building; but as they generally include only establishments employing more than five hands, they say nothing about the output of the handicraft workshops. The few but very important examples of craft products which are known outside the country's borders will be dealt with at the close of this chapter.

The following table of index numbers shows the movement in output quantities in the years from 1927 onwards for the industries as a whole and for the various main groups into which they are divided:

	Index numbers of Industrial Output (1931 — 100)									
	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936 <sup>1)</sup>
Foodstuffs.....	92	95	95	102	100	102	108	113	120	121
Textiles.....	79	83	97	98	100	109	128	138	137	143
Clothing .....	89	91	100	108	100	102	127	139	144	139
Leather.....	106	104	110	121	100	123	158	164	175	159
Wood.....	75	78	87	96	100	77	91	115	121	119
Stone, earthenware & glass .....	86	97	104	117	100	71	105	129	135	128
Iron and metals..	83	97	111	123	100	74	84	101	116	117
Technico-chemical.	80	85	92	98	100	98	108	118	127	128
	86	93	100	108	100	91	105	117	125	125

<sup>1)</sup> Provisional figures.

The table shows that the decline of the output in the years 1932 and 1933 has now been more than made up for by the heavy increase from 1933 to 1935.

In 1935 the index for the total Industrial Output was 25 per cent. higher than for 1931, and according to the provisional figures was of similar dimensions in 1936. The output of all Danish industries is now greater than at any previous time.

The various industrial groups display the same development, with the single exception of the iron and metal industry, which had its highest output in 1930. The decline is due to the shipyard output, which was unusually high in that year.

The decline of the industrial output from 1931 to 1932 was mostly due to the fall in the exports of products; in the years 1928—30 these exports had an average value of 300 million kroner, whereas in 1932 the total was only 200 millions. Since then these exports have risen again and in 1936 once more approached 300 million kroner.

Below is a brief survey of the principal Danish industries, especially with reference to their importance to the country's exports.

A number of important industries have their basis in the industrial manufacturing of certain agricultural produce of the country. There are nine sugar factories and two refineries, employing in 1935 2400 hands and producing 233 million kilos of sugar, and about eighty large flour mills as well as a large number of small ones, employing 900 hands and producing flour and similar commodities to a value of about 70 million kroner. These industries produce for home consumption and supply most of the demand. On the other hand the milk condensing industry, which in 1935 had an output valued at 15 million kroner, exports practically the whole of it, and the canning industry, which produces canned goods of various kinds, tinned meats, vegetables, fish, etc. totalling 22 million kroner, exported meats etc. to a value of 9 million kroner.

There is a number of important industries: breweries and distilleries, tobacco and chocolate factories, whose production, which is of very high quality, is intended for the large consumption at home; nevertheless some of the products of the beer and spirit industries are in good demand in many countries

in various parts of the world. As these commodities relatively have the character of luxuries there is an excise tax on them, and, as this tax is usually high, and the output large, the revenues from them are considerable, for instance about 120 million kroner in the financial year 1935—36, a sum that is in excess of the entire revenue from import duties. The brewing, distilling, tobacco and chocolate industries employed respectively 4,000, 400, 7,900 and 2,700 hands in 1935.

The margarine industry is also based upon a large home consumption, which is entirely covered by the Danish product. In 1935 a total of 118 works produced 78 million kilos of margarine of a value of 64 million kroner and employed 1,100 hands. This industry is of great importance to the Danish vegetable oil industry, in that it receives almost the whole of its raw materials from it. Only very few establishments are engaged in the manufacturing of vegetable oil, but the industry is a very large one and at present is Denmark's principal export industry. The products are sold to margarine and soap makers at home and also to almost every country in the world, whilst the cattle feeds they produce are sold in large quantities to neighbouring countries. In 1935, 140 million kilos of oil and 326 million kilos of oilcake, to a value of 106 million kroner were produced by seven mills employing 1800 hands. The exports of vegetable oils in the same year were 74 million kilos and of oilcake 164 million kilos to a value of 58 million kroner. The oil mills are manufacturing increasing quantities of animal oils, whale oil, seal oil, etc. In 1935 the volume was 46 million kilos and the value 19 million kroner, of which 13 million kroner represent the exports.

The textile, clothing and leather industries are very important in Denmark, and they work to supply the home market. In 1935 the various branches of the textile industry employed about 16,000 hands, and the total output had a value of nearly 170 million kroner. The clothing industry, i. e. the industrial making of garments, employed about 18,000 hands, of whom 5,000 were home workers, and the output had a value of 150 million kroner; tanneries, boot and shoe factories and other sections of the leather industry employed 6,000 hands and produced commodities to the value of about 73 million kroner.

In addition to the home demand these industries have a certain export business, particularly in leather.

In the group which takes its raw materials from the clays that occur so abundantly in the country, and therefore are particularly national in character in this respect, there are two important exporting industries, cement and porcelain. Cement is one of those Danish products which have a market in countries everywhere in the world, and Danish porcelain, in virtue of its high artistic and technical standard, is perhaps the best known Danish export article abroad next after the agricultural commodities. Of the other industries within this group mention may be made of the brick works, which in the season normally occupy about 8,000 workers and produce about 600 million bricks, and the glass works, which in 1935 employed 1200 hands and had an output value of 9 million kroner.

In contrast to this group, the iron and metals industry does not extract its raw materials: ore, coal, etc. from the country's soil. The first step in the manufacturing process — the iron works — is lacking in Denmark, but the later stages, in which the working of the iron increases in importance, are well represented. There are about 100 iron foundries, which in 1935 produced 86,000 tons of castings. A number of these also make machinery, while there are also about 100 engineering works. The total value of the output of machinery and other products was about 100 million kroner. The foundries and engineering works employed 14,000 workers in 1935. The demands of agriculture have made farming and dairy machinery important articles to the engineering works. A considerable export trade in the latter machines has also been built up. Cement-making machinery, too, is exported in large quantities, and numerous cement-making plants in use all over the world are the products of one Danish company. Of the other export articles of the metal industry may be mentioned electrical machinery, electrical articles, dry cells, etc. The electro-mechanical industry which makes these articles employed 6,000 hands in 1935 and had an output value of 68 million kroner. The large home demand for motor vehicles is covered for the greater part by factories which assemble the parts imported from the place of production. In addition, the cars built by these assembling factories are exported in large numbers to

Scandinavia and the Baltic countries. The extraordinarily widespread habit of cycling among the Danish people has created a large industry which in 1935 had a production of nearly 200,000 bicycles. In 1935 the cycle and automobile industries employed 2,200 hands.

A considerable section of the Danish iron and metals industry is occupied in the making of internal combustion engines, both marine and stationary, of which large quantities are exported. The best known is the Diesel motor which, as a consequence of constant improvements, continues to hold its own as the most widely used marine motor. A number are used by the Danish shipbuilding industry which, as a natural consequence of the great part that shipping has always played in Denmark, is of very considerable dimensions. In 1935 there were 10 iron shipbuilding yards with 9,400 workers, and these completed 26 large steam and motor ships totalling 109,900 gross register tons, some of them for foreign owners. One of the yards also builds the large marine Diesel engines. The Diesel motor is also employed in the propulsion of motordriven railway material which to an ever-increasing extent is being used by the railways in substitution of steam locomotives. The orders placed by the railways for motor locomotives have been filled by Danish makers, who have also exported Diesel-electric railway rolling stock and locomotives.

Almost the entire output of wire and electric cables is concentrated in one large establishment, whose products are among the well-known export articles of Danish industry. The total output in 1935 had a value of about 40,000,000 kroner.

The most important sections not yet mentioned under iron and metals are iron and metal goods, which in 1935 employed 4900 hands and had an output value of 53 million kroner, and the silver and electro-plate industry with 1800 workers and an output value of 16 million kroner. Danish silver has in the course of time grown into an article of international commerce that has well received everywhere and now stands alongside porcelain as evidence of the high standard of applied art in Denmark.

The paper and cardboard mills etc., who sell most of their output at home, had 4600 hands at work in 1935 and produced goods to a value of 57 million kroner, whilst printing works and block

makers, etc. with 8400 hands produced a value of 85 million kroner.

In the wood industry 359 saw mills, machine joinery works and other establishments employing altogether 6,200 work-people, produced goods to the value of about 50 million kroner in 1935. The principal export commodity of this industry is material for butter casks.

There still remain to be mentioned the manufacturing of fertilizers by the superphosphate and other works, the output of which in 1935 had a value of about 18 million kroner, and the production of soap and soda for 28 million kroner. In addition, there are export articles such as medicines, rennet, butter and cheese colours, cryolite, cleaned feathers, hats, pencils, and many others.

As was indicated before, a market abroad has also been secured for many high-quality products of the handicrafts, especially in the applied art trades. Among them are book bindings, furniture, silver and ceramic.

This survey of the industrial production of Denmark will have shown that the manufacturing of the great articles of consumption is not organized as mass production for export, but for the supplying of the Danish market, where the sale of domestic products in many respects is supported by their suitability to the special Danish conditions. On the world's markets the Danish industries have secured a footing by devoting their attention to the production of various special articles, where quality, not cheapness, plays the most important part in the international competition.

The central organization of Danish manufacturers is the "*Industriraad*" (The Federation of Danish Industries), 18 Vestre Boulevard, Copenhagen.

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# TRADE

## HOME TRADE

Prior to the passing of the Trading Act of 1857, which was superseded by the Act of 28th April 1931, all trade was, like the handicrafts, subject to a number of ordinances and regulations of a restrictive character. These were abolished by the Act in question, so that in principle there is free access to trade, handicrafts and industry.

According to the census of 1930 the people of the country earning a living by trading may be estimated at one-tenth of the total, and of these again three-fourths were dealers in commodities.

It was in 1925 that Danish trade was for the first time dealt with statistically; the following table shows the principal results arrived from the industrial census of 1935:

	No. of establish- ments (technical units)	No. of persons employed	Total turnover (i. e. value of goods sold) Mill. kr.
Establishments of a wholesale character.	11,704	65,444	4,638
Retail establishments.....	78,109	155,067	2,997
Restaurants, cafés, etc. ....	8,343	41,746	276
Total...	98,156	262,257	7,911

On an average the turnover in the year 1934 was thus 80,000 kroner per establishment and 30,000 per person employed. About 5 milliard kroner of the turnover represented the wholesale trade, the average per establishment being 400,000 kroner as compared with only 38,000 kroner for the retail establishments. These high turnover figures are principally due to the trade in raw materials and the produce of agriculture.

With regard to the persons employed in trade it may be observed that, besides the 262,000 referred to, there were about

18,000 employed in financial and insurance institutions. For these institutions there are separate statistics, so that in the trade census of 1935 it is possible to treat them quite summarily. Thus the total number of people employed in trade is 280,000, i. e. about three-fifths of those employed in handicrafts and industry.

The figures below show the number of women in the total of persons employed in trade:

	Total employed	Women	Percent- age
Establishments of a wholesale character . . .	65,444	14,540	22.2
Retail establishments . . . . .	155,067	52,460	33.8
Restaurants, cafés, etc. . . . .	41,746	22,246	53.3
Total . . .	262,257	89,246	34.0

## FOREIGN TRADE

Denmark is a pronouncedly agricultural country with large exports of produce. The most essential raw and subsidiary materials, which are almost entirely lacking in the country itself, have to be brought in from the outside. As a consequence, Denmark's foreign trade is large. The situation of the country, and its good and numerous ports, have made it the emporium of a considerable trade between other countries, some of which is carried on by Danish firms for own account, and some merely as transit trade for foreign account. Even in early times endeavours were made to facilitate this trade; in 1726 the bonded credit store system was introduced, this later on being extended and incorporated in the Customs Act of 1797 and, in combination with other systems of bonded storage, and the Copenhagen Free Port which was opened in 1894, has been of incalculable benefit to this trade. In its present form the Free Port is a fully modern and spacious port with the best of technical equipment, and besides warehouses and silos it provides accommodation for a number of important industrial establishments.

## THE TARIFF

The Customs Act at present in force dates from 1924. Among the imports that with certain exceptions are exempt from duty



may be named animals and animal products, feeding stuffs, seeds, grain<sup>1)</sup> and milling produce, as well as other garden and field produce, fertilizers, coal and coke, raw metals, iron and steel in bars and sheets, etc., mineral oil fuels and ships. For the most part the duties are specific, though ad valorem duties are in force for certain commodities, especially for articles of luxury.

Among the more important specific duties are: (øre per kilo) wine in barrels 75 and 115 (according to percentage of alcohol); oranges 6.5, apples, pears, quinces 5; most other fresh fruits 1; dried fruits 4; sheet glass, uncut, 6; tyres 80; coffee beans 87, cocoa beans 6; rope and uncoloured string 4, undyed woollen yarn 16, undyed cotton yarn 10, woollen goods 80—200; iron goods, rough wrought 3; vegetable oils 5; common wrapping paper 2, newsprint 1.5, other paper and pasteboard 8; shelled rice 2, refined salt 0.2, sugar with a polarization of higher than 98 per cent. 15, tea 70, tobacco leaf 200; unworked or roughly worked conifer wood 155 (per cubic metre).

Among the ad valorem rates the more important are (the figures indicate the percentage of the value): carpets 20—30, electrical machinery 7.5, other machinery 5, and all goods not named in the Customs Act 7.5. Finally, there are various combined weight and ad valorem duties, such as footwear 150 øre per kilo plus 10 per cent. of the value, motor trucks 25 øre per kilo plus 5 per cent. of the value, whilst the duty on passenger cars is regulated by the cylinder dimensions of the engine.

## IMPORTS AND EXPORTS

The value of the total imports and exports and of the import surplus was:—

	Total imports Mill. kr.	Total exports Mill. kr.	Import surplus Mill. kr.
1936.....	1,486.0	1,379.6	106.4
1935.....	1,330.2	1,267.5	62.7
1934....	1,354.2	1,234.4	119.8

<sup>1)</sup> For grain products, however, certain minimum prices are maintained by means of a sliding scale of duties.

The deficit on the balance of trade is generally covered by the freight earnings of the Danish mercantile marine from foreign trading, and of other revenues from abroad.

The following summary shows how the value of the total of imports is distributed over a number of important commodities and groups: —

### Imports for Consumption.

	1936 Mill. kr.	1935 Mill. kr.
Unground grain and pulse.....	105.7	87.7
Feeding stuffs .....	98.5	78.9
Groceries, etc. ....	51.2	61.0
Yarn, rope, etc. ....	39.5	35.5
Soft goods of silk.....	18.8	16.2
— wool, etc.....	42.9	38.4
— vegetable materials .....	59.3	54.7
Articles of clothing (including footwear)...	18.0	19.2
Tallow, oil, rubber, resin, tar, etc. ....	100.5	82.0
Wood, unworked and sawn, etc. ....	62.1	61.6
Vegetable substances (including oil seeds)...	102.4	93.1
Fertilizers .....	48.1	43.0
Coal, Coke, etc.....	139.5	118.2
Raw iron, etc., semi-manufactured iron goods	101.8	85.2
Manufactured iron goods .....	34.9	30.3
Other metals and metal goods .....	47.7	45.1
Ships, vehicles, machinery, instruments, clocks	111.1	87.0
All other goods.....	260.1	249.6
Total...	1,442.1	1,286.7

About 14 per cent. of the total import value is represented by grain and feeding stuffs. In 1936 oilcake for consumption was imported to a quantity of 712 million kilos, whilst the imports of maize totalled 320 million kilos, of rye and wheat 448 millions, of barley and oats 67 millions. The supplies of foreign feeding stuffs — particularly nitrogenous oilcake — form a necessary supplement to the considerable quantities of Danish seed and root crops that are already utilized in the intensive animal husbandry.

Of groceries Denmark imported 27 million kilos of coffee in 1936, 8 million kilos of rice, 7 million kilos of tobacco, 11 million kilos of oranges, 6 million kilos of dried fruits and 5

million kilos of wine. Despite the widespread growing of sugar beet in Denmark, in good years (1936 for example) enabling the country to export more sugar than is imported, the enormous consumption in other years makes a great import of sugar necessary.

Coal, coke and fuel oils form a very considerable item in the value of Danish imports, and the imported quantities of these articles in 1936 were greater than ever before. The imports of coal, coke, cinders and briquettes in 1936 amounted to 5,800 million kilos, of lamp oil 87 million kilos, of petrol 284 million kilos, and of fuel oils 274 million kilos.

The following are the imported quantities of important industrial raw materials in 1936 and 1935: —

#### Imports for Consumption 1936 and 1935.

	1936 Mill. kilos	1935 Mill. kilos
Wool .....	2.4	2.0
Cotton .....	8.4	7.6
Woollen yarn .....	1.8	1.7
Cotton and linen yarn .....	3.3	2.8
Woollen piece goods .....	2.8	2.5
Vegetable piece goods .....	7.0	6.0
Cattle hides, raw .....	4.8	5.6
Leather and prepared skins .....	1.0	1.0
Rubber, raw .....	3.2	3.3
— manufactured .....	3.5	3.6
Timber, planed boards, etc., of hardwood (1000 cubicmetres) .....	855.7	846.2
Seeds, etc., for oil extraction .....	446.8	470.0
Cocoa-nut oil .....	3.7	3.4
Wood pulp .....	79.9	69.9
Paper, ord., without colour .....	32.5	26.9
Fireproof bricks .....	5.9	5.4
Window glass .....	13.4	10.5
Raw iron .....	57.2	53.0
Profile and bar iron .....	178.4	133.1
Black iron plates .....	113.6	87.7
Automobiles, parts for assembling .... cars	14,566	9,894

As a summary of the imports the following distribution of the total value for 1936 is given, showing the goods grouped by stage of production and use:—

	1936	
	Mill. kr.	per cent.
Materials for the Production:		
of human food etc. ....	115.0	7.7
- agricultural produce .....	197.3	13.3
- industrial produce etc. ....	537.4	36.2
Animal and vegetable oils and fats and materials therefore. ....	120.8	8.1
Fuels, electric energy and lubricants. ....	212.0	14.3
Capital equipments for production. ....	114.4	7.7
Food, beverages and tobacco .....	43.6	2.9
Other articles ready for retail sale or for con- sumers' use .....	145.5	9.8
Total. ....	1486.0	100.0
of which:		
crude. ....	462.4	31.1
simply transformed .....	538.0	36.2
more elaborately transformed .....	485.6	32.7

It will be seen that one-third of the imports consist of finished products, the remainder being almost equally divided between crude and simply transformed goods. Of the finished articles, however, a quantity are employed in production, and the total imports of articles for consumption proper therefore amount to barely 200 million kroner. Of the rest, about 1300 million kroner, much the greater part goes to the industries, though agriculture also uses large quantities of foreign raw materials.

The value of the exportation of Danish goods in 1936 was 1,327 million kroner, distributed over the following groups:—

#### Exports of Danish Products.

	1936	
	Mill. kr.	pCt.
Live animals .....	79	6.0
Bacon, meat and other slaughtery products. ....	379	28.6
Butter, cheese, milk and cream, fresh .....	333	25.1
Eggs. ....	112	8.4
Lard for consumption. ....	16	1.2
Cereals, unground. ....	12	0.9
Seeds for sowing. ....	11	0.8
Hides and skins .....	16	1.2
Lard for technical purposes etc. ....	4	0.3
Other agricultural products .....	7	0.5
Agricultural products. ....	969	73.0

	1936	
	Mill. kr.	pCt.
Milk and cream, condensed etc.....	11	0.8
Canned goods of meat and fish .....	12	0.9
Oilcakes etc. ....	18	1.4
Animal and vegetable oils .....	49	3.7
Leather.....	3	0.2
Textile fabrics, articles of clothing etc. ....	6	0.5
Chemical products .....	15	1.1
Articles of iron and metals .....	31	2.3
Machinery, apparatus, vehicles, etc. ....	67	5.0
Ships, new .....	34	2.6
Ships, secondhand .....	7	0.5
Other industrial products.....	53	4.0
Industrial products...	306	23.0
Fishery products...	34	2.6
Other goods...	18	1.4
Total...	1327	100.0

Agricultural produce accounted for about three-fourths of the total export value.

In 1936 the exported quantities of some important commodities were: —

#### Exports of Danish Produce 1936.

	Unit	Quantity	Mill. kr.
Horses .....	Thousand head	7	7.1
Cattle.....	—	166	45.0
Pigs .....	—	184	27.3
Bacon.....	Million kilos	174	345.5
Beef and veal (fresh).....	—	5	4.1
Butter .....	—	146	319.0
Cheese .....	—	10	14.2
Condensed milk and cream, milk powder	—	17	11.1
Eggs .....	Million score	70	111.9
Grain.....	Million kilos	81	11.6
Rye flour.....	—	6	0.8
Oil cakes.....	—	136	18.1
Potatoes.....	—	38	3.3
Raw hides .....	—	13	16.0
Cocoa-nut oil .....	—	24	12.8
Soya oil .....	—	16	10.0
Flint pebbles.....	—	10	0.5
Portland cement.....	—	331	6.1
Automobiles .....	cars	8,853	25.8

Other important Danish export commodities are beer, purified cryolite, porcelain, machinery and ships.

As previously mentioned, apart from this special trade there is a fairly extensive transit trade, with Denmark as an intermediate station. In 1936 the export value of the transit trade carried on for the account of Danish firms was 53 million kroner. Almost the whole of this transit trade goes via Copenhagen, and much of it through the Free Port. The most important groups in this transit trade are soft goods, mineral oils and machinery etc., but as a matter of fact almost all commodities are represented.

The foreign trade of Denmark is carried on with a large number of different countries, but for the imports Great Britain, Germany, Sweden and U. S. A. are the most important countries. 56 per cent. of the exports of Danish commodities go to Great Britain, and 21 per cent. to Germany, while the re-exports mostly go to the other Scandinavian countries.

The percentage distribution of the value of imports and exports over the various countries in 1936 was: —

	Total Imports pCt.	Total Exports pCt.
Germany.....	25.3	20.3
Great Britain.....	36.5	53.9
Norway.....	2.9	3.9
Sweden.....	6.8	6.1
Iceland.....	0.3	0.4
Finland.....	1.6	1.7
Soviet Union.....	2.0	0.5
Poland and Danzig.....	1.8	0.6
Czechoslovakia.....	0.6	0.4
Holland.....	3.0	1.3
Belgium.....	2.2	1.3
France.....	1.1	1.4
Switzerland.....	0.9	1.2
Italy.....	0.2	0.1
U. S. A.....	5.3	0.8
Other countries.....	9.5	6.1
Total...	100.0	100.0

The only country in respect of which Denmark has an export surplus of any importance is Great Britain; in 1936 there was also an export surplus as regards Norway, Iceland,

France, Switzerland and a number of other countries. The biggest import surplus comes from Germany, the United States, Holland and Belgium.

As regards imports, Germany was in previous years the country from which the greater part came, but in 1936 the imports from Great Britain were about 50 per cent. higher than those from Germany. The principal items among the German imports are soft goods and articles of clothing, coal, coke, iron goods, machinery, and chemico-technical articles. From Great Britain goods to a total of 36.5 per cent. of the whole imports were received in 1936, the principal commodities being coal, coke, soft goods, and articles of clothing, although practically every kind of article is imported from that country, for instance groceries, yarn, oil, iron and iron goods. In addition, Danish importers purchase large quantities of oversea goods in Great Britain. This especially applies to cereals, oil cake, oil seed, fuel oils and groceries; a great many other articles, however, are also bought through British intermediaries. Of the total imports 5.3 per cent. came from U. S. A., whence Denmark receives in particular cereals and feeding stuffs, fuel oils and automobile parts to be assembled in this country, as well as groceries, fruit and raw materials for the textile industry. Nearly one-third of the imports from Sweden consist of wood and wooden articles, followed by paper, feeding stuffs, machinery, articles of iron and metals and soft goods. About one third of the imports from Norway are fertilizers, more than two-thirds of those from Finland are wood and wooden articles and one-fourth are paper.

By far the greater part of the exports of Danish goods go to Great Britain, which is the largest buyer of Danish butter and bacon. Germany, too, imports considerable quantities of agricultural produce. The exports to Norway mostly consist of ships and automobiles assembled in Denmark of parts imported from America, while the exports to Sweden especially consist of automobiles, vegetable oils and oilcake.

## BROKERS, WEIGHING AND MEASURING

In connection with the trade of Denmark the present system of brokering and of public weighing and measuring is of

interest. There are publicly appointed brokers in Copenhagen and most of the provincial towns. Before receiving their appointment brokers must pass a test and affirm that they meet the legal requirements as to personal qualifications. They are not allowed to trade for own account. The fees for their assistance are fixed by the public, and the sales notes, etc., of public brokers are accepted as authentic in courts of law.

There are public weighers and measurers in towns and country. Like those of the brokers, their fees are fixed by the public, and their certificates have full weight as evidence.

The leading commercial organizations as far as the wholesale trade is concerned are The Merchants' Guild (Grosserer-Societetet) and the Provincial Chamber of Commerce (Provinshandelskamret), the former representing the merchants of the capital, the latter those of the provinces.



## FINANCIAL INSTITUTIONS

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### BANKS

Danish banking is characterized by a marked concentration, the greater part of the banking business of the country being in the hands of the three largest banks, all of which have their headquarters in Copenhagen. Thus more than one-half of the total of all the balance sheets of the banks is represented by these three. Nevertheless, the number of independent banks all over the country is very large, but with some few exceptions they are of local importance only and in most cases of no great size.

"Danmarks Nationalbank" is the only bank of issue in Denmark. It was established in 1813 as a State bank, "Rigsbanken", but in 1818 it was formed into a private joint stock bank, on which occasion it received the name "Nationalbanken i Kjøbenhavn". The bank was a private joint-stock bank, though the Government had a certain supervision over its management, until a reorganization was brought about by the Act of 7th April 1936. The name was changed to "Danmarks Nationalbank", and the bank was turned into an independent institution whose management to some extent is chosen and controlled by the Government, Parliament and the principal trades and industries. The shares (27 million kroner) were converted by the issue of debentures with a nominal value of twice the face-value of the shares.

The Bank is operated by a Board of Governors of three members and a Board of Directors of 25. One of the governors is chosen by the Crown (and is chairman), two by the

Board of Directors. The latter is chosen as follows: two members by the Ministry of Trade, eight by Parliament and fifteen by the Board itself; five of the latter, together with the two chosen by the Ministry of Trade, form the Committee of Directors.

Concerning the note issue, the new arrangement is that the Bank must have a gold reserve in coin or bullion corresponding to 25 per cent. of the note issue; up to 5 per cent. of this may be deposited abroad if the Bank has unrestricted control of the amount. Furthermore, a maximum of 5 per cent. may be represented by sight demands on certain foreign issue banks.

Apart from appropriations for reserves and reduction of the general capital stock, the Bank's surplus goes to the State, which advanced a capital fund of 50 million kroner in the form of a debenture.

The note circulation of Nationalbanken in 1914 was a little over 150 million kr., and is now about 400 millions, or 53 and about 100 kroner respectively per inhabitant. The gold reserve, which was about 80 million kroner in 1914, amounted to 118 millions at the end of 1936.

By means of its branches Denmark's National Bank is represented in the various parts of the country. In all it has five inland branches and a foreign branch at Flensburg, dating from the time prior to the cession of Slesvig to Prussia in 1864.

The development of the banks which have no right of issue dates from about 1850. The three banks which, besides the National Bank, are looked upon as the principal banks of the country are "Privatbanken i København", established 1857, "Den danske Landmandsbank, Hypotek- og Vekselbank", established in 1871, and "Københavns Handelsbank", established in 1873.

At the end of 1935 there were in all 168 private banks with a balance sheet total of about 3,000 million kroner, of which 1,500 millions represent the three principal banks.

The assets and liabilities of the banks according to the balance sheets of December 31st, 1935. were distributed as follows :—

	All private banks Mill. kr.	of which		
		Land- mands- banken Mill. kr.	Handels- banken Mill. kr.	Privat- banken Mill. kr.
<i>Assets:</i>				
Cash in hand.....	190	69	39	48
Credits in Danish banks and savings banks.....	94	21	20	16
Foreign credits, bills, etc.....	53	18	9	11
Stocks and shares.....	453	135	81	68
Home bills.....	357	64	58	31
Loans outstanding.....	1,546	242	251	168
Others.....	257	91	51	53
Total...	2,950	640	509	395
<i>Liabilities:</i>				
Capital and reserves.....	445	85	76	52
Danish banks and savings banks..	200	29	25	45
Foreign correspondents.....	41	18	8	9
Deposits.....	2,058	454	355	252
Others.....	206	54	45	37
Total...	2,950	640	509	395

A Banks Act was passed in 1919, prescribing a number of special rules for these institutions. These rules are amended and extended by the Act of April 15th, 1930, according to which banks must have a capital of not less than 300,000 kroner, and the total overdraft of any client must normally not exceed 35 per cent. of the bank's own capital. The Act furthermore places the banks under the supervision of a Bank Inspector appointed by the Government, and accounts and monthly returns are to be submitted to him in a form prescribed by the Ministry of Commerce. The Bank Inspector periodically examines the activities of the various banks. The Act does not demand any concession for the carrying on of banking business, being mainly of a regulating character, but the approval of the Minister of Commerce of the statutes of banks established after the passing of the Act is a necessary condition of their commencing business.

### THE SAVINGS BANKS

The number of savings banks is about 530, with a total deposit capital of about 2,200 million kroner. The savings

banks are all private undertakings, there having been no desire for a post-office savings bank in Denmark. The number of savings banks is large enough and they are evenly distributed over the country. It has especially been of importance in this respect that there are numbers of small savings banks in the rural districts. Furthermore, to a great extent the rural population are the depositors in the savings banks of the provincial towns.

Four of the savings banks, three of which are in Copenhagen, have deposits of more than 100 million kroner each, 72 have between 5 and 100 million kroner, 97 between 1 and 5 millions, while the remaining 356 have less than one million kroner; 346 of these were in the rural districts.

The total funds were invested in the following manner in 1936: —

	Mill. kr.
Cash in hand.....	100
Bonds .....	508
Shares .....	10
Mortgages on farm properties .....	836
— town properties.....	451
Advances on personal guarantees.....	190
— to municipalities .....	287
— to others .....	59
Sundry .....	54
<b>Total...</b>	<b>2,495</b>

As far as possible the savings banks adhere to the principle of a fixed, low deposit interest. This can better be practised in Copenhagen than in the provinces, where the competition with the banks for deposit funds is more keen.

Since 1880 the savings banks have been under the supervision of a Savings Banks Inspector. The present Act concerning savings banks (of 4. Oct., 1919) also contains rules to ensure the liquidity of these banks, including the investment of deposit funds and the administration of the savings banks themselves, and it lays down that financial institutions in which participation in profits and surplus is reserved to founders, guarantors or shareholders must not call themselves savings banks. The regulations governing the investment of deposit

capital in savings banks, their liquidity, etc. have been further tightened up by the Act of 18. May, 1937, which came into force on July 1st, 1937.

## MORTGAGE INSTITUTIONS

Credit in the security of landed property in Denmark is organized through Mortgage Credit and Hypothec Societies in a manner which facilitates the obtaining of cheap loans and at the same time offers the lender satisfactory security. These societies are, with one single exception, associations of loan-seeking property owners who, through joint liability, offer greater security and therefore obtain cheaper loans.

The Mortgage Credit Societies grant loans on first mortgages up to three-fifths of the appraised value. The Hypothec Societies give loans on second mortgages, as a rule so that the maximum liability incurred may reach up to 75 per cent. of the property value.

The Mortgage Credit and Hypothec Societies as a rule work within certain local districts and often limit their activities either to town or landed properties. There is a separate Mortgage Credit Society for industrial property.

The following table shows the number and loans of the Mortgage Credit and Hypothec Societies in 1935/1936: —

	Mortgage Credit Societies	Hypothec Societies
Number of institutions .....	13	9
— loans .....	436,898	67,498
Outstanding loans, mill. kr. ....	4,711	471
Cash bonds in circulation, mill. kr. ....	4,693	467
bearing interest at 3 $\frac{0}{0}$ p.a. ....	2	—
— — 3 $\frac{1}{2}$ $\frac{0}{0}$ - .....	219	—
— — 4 $\frac{0}{0}$ - .....	2,012	—
— — 4 $\frac{1}{2}$ $\frac{0}{0}$ - .....	2,364	47
— — 5 $\frac{0}{0}$ - .....	96	420

In addition to the above there is a Mortgage Credit Society for the municipalities, which in 1935 had bonds to an amount of 116 million kr. in circulation.

For the purpose of further supporting real estate credit, especially in the selling of bonds abroad, The Royal Danish

Mortgage Bank ("Kongeriget Danmarks Hypotek Bank") was established in 1906. Through this institution Mortgage Credit Society, Hypothec Society and Tithe Bank Bonds, as well as bonds issued or guaranteed by public corporations, are exchanged with Mortgage Bonds on principles similar to those described for the Mortgage Credit and Hypothec Societies, a system that offers the double advantage of a uniform security and the additional guarantee involved by the amalgamation. The latter security is also increased by the fact that the State has transferred a State bond of 20 million kroner to this Mortgage Bank for the purpose of serving (as its constitutional capital) as the security for the bonds issued. The sum of the bonds valid at any one time must not exceed eight times the amount of this capital. In 1936 there were Mortgage Bank bonds to an aggregate value of about 156 million kroner in circulation.

## THE COPENHAGEN STOCK EXCHANGE

The regulations for the conducting of business on the Copenhagen Exchange were last arranged by the Act of March 19th, 1930, which provides that the Stock Exchange is to be governed by a committee consisting of a chairman nominated by the Government and of three members elected by the Committee of the Merchants' Guild, five by the members of the Exchange, and two by the companies whose shares are dealt with on the Exchange. Membership requires a licence as a broker and the depositing of not less than 25,000 kroner as security, and notice of admission is communicated by the Minister of Commerce. Only members are allowed to bid and offer on the stock exchange, which is under the supervision of the Bank Inspector.

There is an ordinary quotation of prices every week day according to the auction principle. The securities entered on the list are called out in order, and if the prices of sellers and buyers agree, business is done and the price is noted under the heading "done at". As a rule the unit of turnover is 4,000 kroner, and most securities are quoted by percentages, the smallest increase or fall in the bids being  $\frac{1}{4}$  per cent. As long as business is being done in a security the quotation remains open. It closes when the bids no longer agree, and the next

one on the list is proceeded with. The bids at which buyer and seller close are noted as "buyer rate" and "seller rate". If the difference between these is greater as a rule than 2 per cent. there is no quotation.

There is an extraordinary quotation three times a week and under the same forms as the ordinary quotation; it deals with bonds and shares listed for extraordinary weekly quotation. In this case there is a quotation as a rule when the difference between sellers and buyers does not exceed 5 per cent. The "after-Bourse" is held every exchange day after the closing of the quotation and comprises all paper listed for quotation as well as unquoted paper.

All quotations are public. Certain conditions must be complied with before a security can be placed on the list; for instance, shares in companies with a capital of less than 2 million kroner are not accepted for ordinary quotation, although at the extraordinary quotation down to half a million kroner is accepted. As a rule, foreign bonds are only listed if they belong to loans that have been offered for public subscription in Copenhagen or contracted there.

The following figures show the business done at the official quotation, according to nominal values: —

	Bonds Mill. kr.	Shares Mill. kr.
1934.....	583	167
1935.....	392	137
1936.....	243	135 .

For all sales of shares (but not bonds) a stamp tax is payable at the rate of about 0.5 per cent. of the transfer value. The sales of revenue stamps make it possible to calculate the total value of shares sold at or after the quotation; in the years 1934/35 it was 413 and 335 million kroner respectively.

The quotation of foreign currency in Copenhagen is undertaken by a special Exchange Rate Committee consisting of a member of the Committee of the Merchants' Guild and one of the directors of the National Bank. Sight rates are quoted daily on thirteen European centres and on New York, and the rates fixed are sellers' rates.

## INSURANCE COMPANIES

The insurance business in Denmark can trace its origin back a great many years, as some of the existing fire companies were established as early as in the eighteenth century.

Many of the Danish insurance companies are organized as mutual companies; as regards fire insurance of real property, for instance, an overwhelming part of the business is distributed among three large mutual companies (one of which was established in 1731, one in 1761 and one in 1792). In personalty fire insurance, life insurance, and sickness and accident insurance the mutual companies likewise play an important part, while with regard to domestic animal insurance they are practically supreme. Apart from the very large number of purely local companies in this latter branch, the number of mutual insurance companies is about 200, and in 1935 these had a total gross premium income of 71 million kroner.

Of joint stock insurance companies there are only about half as many, but on the other hand their business is very much greater. If the three marine companies, which are organized in a special manner, and the State Institution for Life Insurance are included in this group, the year 1935 shows a total gross premium income of 326 million kroner. The five largest companies have an annual gross premium income of 158 million kroner, nine have at least 10 millions each in gross premiums, twenty-nine have between one and ten millions, and forty-three have under one million kroner.

The fact that the business of the joint stock companies is so much larger than that of the mutual companies is due to the much greater reinsurance business of the former. Whilst their gross premium income from direct insurance in 1935 amounted to 146 million kroner, their gross premium income from reinsurance was 180 million kroner. A large part of this comes from abroad, and on the whole the business done by Danish insurance companies abroad considerably exceeds that done by foreign companies on the Danish market. At a rough estimate the total business transacted on their own account by Danish companies is equivalent to almost one-third as much again as that yielded by the Danish insurance market as a whole.



Of foreign insurance companies about 100 have agencies in Denmark, and these collected premiums in 1935 to the total sum of 15 million kroner. The foreign companies chiefly deal with fire insurance, life insurance, and motor car insurance. Nearly half of them are English, most of the others being Norwegian, Swedish and German.

The following table comprises the gross premium income of all companies in the various branches in 1935:—

	Gross Premiums	
	Danish Companies 1000 kr.	Foreign Companies 1000 kr.
<i>A. Direct Insurance:</i>		
Life .....	97,822	3,017
Pensions .....	9,338	—
Sickness and accident ..	26,441	1,358
Motor car .....	14,220	2,409
Other liability .....	6,489	498
Fire — real property .....	14,602	} 3,259
Fire — personalty .....	18,984	
Burglary and theft .....	2,685	355
Marine and transport .....	14,530	171
Other branches .....	9,517	1,046
Total...	214,628	12,113
	Gross Premiums	
	Danish Companies 1000 kr.	Foreign Companies 1000 kr.
<i>B. Reinsurance:</i>		
Life and pensions .....	33,997	6
Fire, burglary, loss of profit, etc. .	97,731	1,431
Marine and transport .....	25,385	1,576
Other branches .....	25,418	4
Total...	182,531	3,017
Grand Total...	397,159	15,130

In direct insurance life is, as will be seen, the branch that has the greatest gross premium income, the total for Danish and foreign companies being 101 million kroner in 1935. For each of the five branches: sickness and accident, motor vehicles, fire (real property), fire (personalty), and marine and transport, there is a premium income of about 15–25 millions, whereas the other branches are of less importance. In regard to reinsurance, fire, together with a number of smaller bran-

ches, gives the Danish companies a gross premium income of about 98 million kroner, life and pensions 34 millions, marine and transport 25 millions, while the other branches together yield 25 million kroner in gross premiums.

## JOINT STOCK COMPANIES

Under the limited company form the number of concerns is growing, as the following table shows: —

	No. of limited companies	Paid up capital Mill. kr.
1891.....	274	243
1910.....	2,876	804
1921.....	4,635	2,310
1930.....	7,026	2,178
1936.....	7,128	2,033

Of the 7,128 limited companies registered on January 1st, 1936, 425 were established prior to 1900, 1,055 were established in the years 1900—1914, 881 from 1915 to 1919, and 2,381 in the years from 1920 to 1929, whereas 2,386 date from 1930 or later.

About two-thirds of these companies have their registered office in Copenhagen, and they are also the largest, comprising almost three-fourths of the total capital of all companies.

According to nature of business the companies are divided as shown below:—

	Number of limited companies	Paid up Share capital Mill. kr.
Banks, etc.....	181	331
Steamship companies.....	110	150
Sailing ship companies.....	24	1
Railway companies.....	63	154
Telegraph and telephone companies.....	6	120
Insurance companies.....	94	60
Industrial companies.....	2,145	692
Real estate companies.....	1,151	85
Commercial companies.....	3,016	389
Other companies.....	338	51
Total...	7,128	2,033

Of the total capital 692 million kroner represents the industrial companies, 331 millions the banks, 389 millions the trading companies and 151 millions the shipping companies.

Limited companies come under a special Joint Stock Company Act of 1930 (formerly of 1917), which prescribes regulations as to establishment, increase or decrease of capital, acquisition of own shares, presentation of accounts, the management, its duties and responsibility, audit, and the general meeting, as well as winding up, fusion and bankruptcy. All joint stock companies are entered in a Register of Joint Stock Companies and must send in a statement of their accounts to it, as well as notify all changes in management, capital, etc.

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## SHIPPING

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The shape of the various lands that form the kingdom of Denmark, and the country's geographical situation, have had the natural consequence that the sea has always played an extremely important part in the life of its inhabitants. As far back as history and legend reach there is a wealth of detail showing that Danes have fared familiarly over the seas, not merely between its own constituent parts but to all foreign lands as well. Mention need only be made of the Viking raids at the beginning of history, and of the trading companies in more recent times, who were owners of large fleets of sailing ships trading with the West Indies and the East. The character of Danish waters as channels for the Baltic trade has also encouraged the country's own shipping.

As a consequence of the almost complete absence of coal and industrial raw materials, the industrial growth that manifested itself everywhere in the latter part of the nineteenth century, and in Denmark moved concurrently with a marked intensification and industrializing of agriculture, produced an especially strong demand for an increase of seaborne traffic between other countries and Denmark. The favourable opportunity that thus offered itself — of expanding the shipping industry with a foundation in the serving of the other Danish industries — was not allowed to slip. As the statistics given below will show, nearly half of the goods traffic between Denmark and abroad is nowadays carried by Danish ships, and in addition the Danish mercantile marine takes a very big part in the trade between other countries, both by means of tramp steamers and the running of regular liners. The figures show that the Danish mercantile fleet still continues to occupy a place among the largest in proportion to the size of the population.

In 1935 Norway had 1412 register tons per 1000 inhabitants, Great Britain 435, and then came Denmark as No. 3 with 309 register tons per 1000 inhabitants.

## THE MERCANTILE MARINE

The following summary shows the size of the Danish merchant fleet in 1936 and in 1915. No ship of less than 20 gross register tons is included.

As at Jan. 1st.	Number of Ships		Gross Reg. Tons	
	1936	1915	1936	1915
Steamers.....	555	651	623,892	720,159
Motor ships . . . . .	208	27	482,632	48,476
Sail-motor ships . . . . .	1,071	370	54,505	14,753
Sailing ships.....	25	870	2,880	84,076
Total... ..	1,859	1,918	1,163,909	867,464

The table clearly shows the two most characteristic movements that are at present going on in the Danish mercantile marine, i.e. the rapid increase of the large motor ships and the transition from sailing ships to sail-motor ships. The whole fleet at the beginning of 1936 consisted of 1,859 ships with a total of 1,164,000 register tons, of which 763 vessels, with a total of 1,107,000 register tons, were steamers and motor ships. Of the aggregate tonnage, 95 per cent. was thus made up of steamers and motor ships, but whilst the steamer tonnage was reduced 13 per cent. from 1915 to 1936, the motor ship tonnage has increased from 48,000 to 483,000 tons, that is to say, it has increased ten times and is now not very much less than the steamer tonnage. The Danish fleet, along with the Norwegian, still holds the lead in the transition from steam to motor power which is taking place all over the world. The motor ships of the Danish fleet are built at Danish yards, and the whole of this development is closely connected with the advance of the Danish Diesel-motor industry, which is referred to in the chapter on Handicrafts and Industry. For the most part the motor-ship fleet consists of large Diesel vessels, built for the overseas cargo trade, but smaller motor

ships are now being increasingly used in regular route traffic. Motor ships in ever-growing number are being put into the services between Danish ports and in the passenger and produce trade to England, and the most modern and largest ferries of the State Railways are driven by Diesel engines.

The largest vessels in the Danish mercantile marine are motorships, a number of them being about 10,000 tons. The largest are employed in the combined cargo and passenger trade to and between oversea ports in regular routes, and a considerable number run on similar lines with cargo alone. Most of the large and medium sized vessels, motor ships and steamers alike, are however engaged in the tramp trade. There are now about twenty Danish tank ships, one of them of 10,500 tons register. Of the smaller steamers and motor ships a large number have been built for combined passenger and cargo carrying between Danish ports and ports in the neighbouring countries. The Danish State Railways use a large number of ferries for carrying railway rolling stock and passengers over the narrow waters between the various parts of the country and between Denmark and her neighbours.

Copenhagen is the headquarters of practically all the steamship and motor-ship owners, a consequence of the centralization of business and administration there. Of the sail-motor ships and sailing vessels, however, by far the greater number belong to the provincial ports. The towns of Svendborg and Marstal, in particular, have been the homes of a great part of the sailing-ship fleet since early times, and the majority of the seagoing sailing vessels without auxiliary engines belong to these ports. As has already been remarked, however, this type of cargo carrier is rapidly declining in number; no new cargo-carrying sailing ships are being built, and motors are being installed in several of the existing vessels. As the table shows, sailing-ship tonnage in 1915 was six times greater than motor-sail tonnage, whereas now conditions are reversed. Today only 25 sailing vessels are left, 9 of them being larger than 100 register tons.

Of small craft of less than 20 gross register tons there are 8—9,000 fishing boats and a similar number used for other purposes.

The State of Denmark encourages the shipping trade in various ways: by grants to schools of navigation, by maintaining pilot, light, marking and life-saving services and icebreakers, and by the construction and working of harbours.

The light service consists of 161 light-houses, 14 light-vessels and 73 light-buoys. At 28 of the light-houses and on all the light-vessels there are fog-signalling apparatuses.

The life-saving service is in active function approximately fifteen to twenty times a year and saves annually something under 100 lives. Most of the rescue work is now done by means of lifeboats. There are annually about 100 strandings round the Danish coasts and the inner Danish waters, but only a minority of these involve shipwreck.

According to the official Danish ship register, *Danmarks Skibsliste*, there were at the end of 1935 the following steam and motor shipping firms with fleets of more than 20,000 gross register tons each: —

	Steamers			Motor ships		
	No.	Gross tons	Net tons	No.	Gross tons	Net tons
East Asiatic Co. Ltd. ....	—	—	—	27	188,738	118,606
United Steamship Co. Ltd.	96	143,642	82,846	14	44,878	26,861
Steamship Company of 1912, Ltd. ....	23	41,171	24,337	14	86,526	52,593
Vesterhavet Steamship Co. Ltd. ....	40	52,465	30,757	2	3,565	1,992
Dannebrog Steamship Co. Ltd. ....	19	37,042	22,047	1	4,551	2,785
Norden Steamship Co. Ltd.	5	13,599	8,332	6	27,200	16,528
Torm Steamship Co. Ltd.	22	30,718	18,017	2	3,226	1,791
Progress Steamship Co. Ltd. ....	26	32,409	19,185	—	—	—
Orient Steamship Co. Ltd.	—	—	—	6	30,158	19,092
Danish Petroleum Co. Ltd.	5	10,385	7,345	3	19,678	12,095
Svendborg Steamship Co. Ltd. ....	11	21,356	12,672	2	8,313	5,092
Myren Steamship Co. Ltd.	8	13,830	8,130	2	8,199	4,935
Danish-French SS. Co. Ltd.	6	8,709	5,122	4	12,688	7,611
Vendila Steamship Co. Ltd.	9	20,501	12,248	—	—	—

## SHIPPING BETWEEN DANISH PORTS

The configuration of the country involves that a large part of the inland traffic has always had to proceed by sea. Now-

adays the traffic on the main routes between the various provinces is maintained by large modern motor and steam ships besides the ferries, whereas the rest of it is carried by sail and sail-motor tonnage. Copenhagen being the centre of a considerable part of the overseas import trade, and as a consequence of its dominating position in every respect, the city has regular services with practically all towns on The Islands and in Jutland. These regular liners, which carry passengers and cargo, are exclusively Danish ships, whereas a number of foreign vessels, especially German, Dutch and Swedish, share the rest of the coastwise traffic. Over two million tons of goods are carried every year between Danish ports apart from the ferry traffic. In 1935 only four per cent. of the goods were carried by foreign ships.

#### SHIPPING BETWEEN DANISH AND FOREIGN PORTS

In the traffic between Denmark and other countries 10.7 million tons were transported inwards and 2.2 million tons outwards in the year 1935. Nearly half of the quantity of goods is carried in Danish ships. Naturally, sailing ships play only a comparatively small part in the foreign trade, only one-eighth of the goods being carried in these ships. Of the total tonnage arriving at Danish ports from abroad in 1935, 12.6 million register tons in all, one-fourth was ferry traffic. In the rest of the inward traffic almost all ships carry cargo, whereas one half of the outward-bound steamer tonnage and two-thirds of the sailing-ship tonnage sails in ballast. This is a consequence of Danish trading conditions, great quantities of bulk goods being imported, whilst the exports to a great extent consist of manufactured products. Almost a half of the inward cargo consists of coal; next in importance are feeding stuffs for agriculture, maize and oilcake. Danish ships carry about half of these freights. A large number of cargoes of wood and stone come from the other Scandinavian countries, but in this trade, much of which is carried by sailing ships, the share of Danish vessels is smaller. Among other cargoes of importance to Danish vessels is oil-seed from the East. One of the principal outward freights is the extensive exportation of agricultural produce to England, most of which is carried in



Danish ships running in regular services. The export of cement is also of great importance to Danish shipping, particularly as an outward cargo for ships trading overseas. During recent years, however, the world crisis has caused a considerable dropping-off in the exports of this commodity.

## DANISH SHIPS IN FOREIGN TRADE

In this trade between Denmark and other countries 5.2 million tons of cargo out of a total of 12.9 million tons were carried by Danish vessels in 1935. Danish merchant vessels also take an important part in the international carrying trade which does not touch at Denmark. In 1935, Danish ships carried 7.2 million tons of goods between foreign countries. The principal centres of this trade are the North Sea, Baltic and Channel ports, where coal and timber cargoes form the greater part of those transported between the ports concerned. A very large quantity of cargo is carried between these waters, sometimes in connection with intermediate trade with Danish ports. Coal and timber are mostly freighted by tramp vessels, which also do their share of the carriage of every description of merchandise both between European ports and in distant parts of the world. The most important part of the work of the Danish mercantile marine outside Europe, however, lies in regular routes which Danish owners have established. They touch at ports in all seas, even the most remote like those in South America and the Far East. And besides trading between foreign ports, these ships carry cargo to and from Denmark.

Below is a brief summary of the principal foreign services run by Danish owners. It does not include the ferry services to Sweden and Germany, passages to Greenland, or certain small services to German ports.

## GROSS EARNINGS FROM FOREIGN SHIPPING FREIGHTS

In the traffic between Denmark and other countries, and in the purely foreign trade, the Danish mercantile marine earned in gross freights in the years 1933—35 from 180 to

201 million kr., while for 1936 the total is estimated at about 215 million kr. About two-thirds of this amount was earned in purely foreign traffic, and the remainder in traffic between foreign ports and Danish ports. A considerable route, liner and similar traffic is carried on by Danish ships, not only between Denmark and foreign countries but also between foreign countries, it being the practice in connection with the latter services for ships engaged in overseas trade to call at a number of foreign ports on their voyages to and from Denmark. About one-half of the gross freights earned come from route, line and similar traffic, and of this proportion again about one half comes from purely foreign traffic.

# THE PRINCIPAL FOREIGN SERVICES RUN BY DANISH SHIPOWNERS

(excluding ferries and passages to Greenland).

## *The United Steamship Company Ltd.*

Copenhagen/Scandinavia/Baltic-Antwerp—

North Africa, Marseilles, Italy/Sicily—Spain

—Portugal..... twice or thrice  
monthly

Copenhagen/Scandinavia/Baltic—East Coast

of N. America and Gulf Ports ..... twice monthly

Copenhagen/Scandinavia/Baltic—Madeira—

Canary Islands—Argentina and Brazil.... thrice monthly

Copenhagen/provincial ports—Antwerp..... twice weekly

Esbjerg—Antwerp—Dunkirk ..... once weekly

Copenhagen—Hull ..... once weekly

Copenhagen—London..... once weekly

Copenhagen/provincialports/Gdynia/Danzig

—West of England ..... once weekly

Copenhagen/provincialports—Newcastle-on-

Tyne ..... once weekly

Provincial ports—Leith ..... once weekly

Esbjerg—Harwich..... daily (except  
Sundays)

Esbjerg—Grimsby.....,....., twice weekly

Copenhagen/Gdynia/Danzig/Tallinn/Riga—	
North and West France . . . . .	twice monthly
Copenhagen—Gdynia—Danzig . . . . .	once weekly
Copenhagen—Kiel—Hamburg . . . . .	twice weekly
Aalborg/Aarhus—Hamburg . . . . .	once weekly
Copenhagen—Königsberg—Riga—Libau—	
Klaipeda . . . . .	twice monthly
Copenhagen—Stettin—Gothenburg . . . . .	once weekly
Copenhagen/provincialports—Stettin—Oslo	
—Oslo Fjord . . . . .	once weekly
Copenhagen—Stettin—West Norway . . . . .	once weekly
Copenhagen—Frederikshavn—Oslo . . . . .	once weekly
Copenhagen—Oslo . . . . .	twice weekly
Copenhagen—Leith—Faroeislands—Iceland..	twice monthly

*East Asiatic Company Ltd.*

West Indies and Pacific Line: Copenhagen—Aalborg—Gothenburg—North Sea ports—West Indies—Pacific Coast of North and South America.

Bangkok Line: Copenhagen—Aalborg—North Sea ports—Mediterranean ports—Colombo—Penang—Singapore—Bangkok.

Japan Line: Copenhagen—Gothenburg—Oslo—North Sea ports—Mediterranean ports—Port Said—Singapore—Philippines—China—Japan—Manchukuo.

Australia Line: Copenhagen—Swedish Bothnian ports—Gothenburg—Oslo—North Sea ports—Australia.

Local Route in the East: Siam—China.

*Steamship Company of 1912 Ltd.*

U. S. A.—Atlantic ports—San Pedro—Philippines—China—Japan.

*Steamship Company of 1912 Ltd. and  
Svendsborg Steamship Co Ltd.*

U. S. A. Atlantic ports—Panama—Los Angeles—Yokohama—Kobe—Shanghai—Hong Kong—Philippines.

*Islands Eimskipafjellag H/f.*

Copenhagen—Leith—Iceland . . . . . thrice monthly

*Føroyar Skipofelagid (A/S Eriksen & Petersen).*

Copenhagen—Leith—Faroe Islands . . . . . twice monthly

*Phonix Steamship Company Ltd.*

Esbjerg—Hamburg . . . . . once weekly

*Øresund Steamship Company Ltd..*

Copenhagen—Malmö . . . . . Four or five  
times daily

Copenhagen—Helsingborg . . . . . once daily  
(Saturdays &  
Sundays  
excepted)

*Torm Steamship Company.*

Hamburg/Antwerp—Cork—Dublin . . . . . every three  
weeks

Hamburg/Antwerp—Alexandria—Palestine—  
Syria . . . . . twice monthly

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## COMMUNICATIONS

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### THE PORTS

Most of the Danish provincial towns are situated directly by the sea and have harbours. There are in all more than 80 seaports by sea or fjord, and along the coasts a large number of smaller harbours and piers. In most cases the harbours are municipal, some of the smallest are private, and the State owns the harbours of Esbjerg, Frederikshavn, Elsinore, Skagen, Anholt, Hammerhavn, Thyborøn and some piers. The port of Copenhagen is an independent institution, on the board of which are representatives of the Government, Parliament, the City Corporation and the large trade organizations. The Free Port of Copenhagen was established and is owned by the Copenhagen Port Authority but is worked by a joint stock company, which has provided it with warehouses, loading and discharging gear, etc.

The basins in the Customs Port of Copenhagen have a total area of 472 hectares (1 ha. — 2.4 acres) and a depth of up to 10 metres, while the length of quays and wharves is 30,772 metres. The area of the Free Port is 34.2 hectares with a water depth of up to 9.5 metres and with 5,683 m of quays and wharves. In addition, there are 1,703 ha. of water area that have not been designated for any particular purpose, so that altogether Copenhagen harbour has a total water area of 2,209 ha. within the limits of the piers. The Free Port has contributed greatly towards the rising importance of Denmark as an emporium of the trade with the Baltic countries.

The principal provincial harbours have the following maximum depth of water: Esbjerg up to 8.8 metres, Aarhus up to 8.5 metres, Elsinore, Frederikshavn and Korsør up to

8.0 metres, Aalborg, Nørre Sundby, Fredericia (for tankers up to 7.8 metres), Aabenraa, Sønderborg, Odense and Nyborg up to 7.5 metres, Kolding, Svendborg, Kalundborg and Rønne up to 7.0 metres, Horsens and Vejle up to 6.9 metres, Haderslev 6.5 metres, Nakskov 6.3 metres, Randers 5.7 metres, Holbæk 5.6 metres and Skagen 5 metres. There are also considerable water depths at some private wharves, for instance the cement works in Limfjord and Mariager Fjord.

The principal charge upon ships calling at these ports is one on their net tonnage and for steamers and motor ships is paid inwards and outwards on the following scale per net register ton: At Aalborg and Nørre Sundby and the other East Jutland ports with the exception of Aarhus 25 Øre, at Esbjerg 25 Øre, at Sønderborg 30 Øre, at Odense and Nyborg 36 Øre, at Svendborg 30 Øre, at Korsør, Kalundborg and Holbæk 37 Øre, at Elsinore 25 Øre, at Nakskov and Nykøbing, Falster, 30 Øre and at Rønne 30 Øre. For ships distributing their cargo at various ports, however, there is an allowance which for all provincial ports with the exception of Aarhus has the form that a vessel of more than 400 register tons discharging or loading part of her cargo at several Danish or foreign ports will only pay tonnage dues inwards, with an addition that amounts to 20 Øre per discharged or loaded weight-ton of cargo at Aalborg and 25 Øre at the other ports.

The corresponding tonnage dues in Copenhagen are: 1) 15 Øre per net register ton for each call at the port (inwards and outwards together), and 2) 10 Øre per weight-ton cargo discharged or loaded at quays, and 5 Øre per weight-ton cargo discharged or loaded at buoys, piles or at other vessels, and at Aarhus 1) 15 Øre and 2) 16 Øre respectively.

In 1936 all Danish ports together were called at by 96,500 vessels with a net register tonnage of 17.5 million tons, and they discharged 14.1 million weight-tons of cargo and loaded 4.8 millions. The table below shows the traffic at the principal ports in 1936.

	Arrivals	1,000 n. r. t.	Goods discharged and loaded 1,000 tons
Copenhagen .....	19,995	7,073	6,582
Aalborg—Nørre Sundby	6,429	1,399	1,923
Aarhus.....	4,469	1,269	1,472
Odense.....	2,767	506	793

	Arrivals	1,000 n. r. t.	Goods discharged and loaded 1,000 tons
Esbjerg .....	1,035	992	738
Nyborg .....	805	307	529
Fredericia .....	1,014	296	328
Kalundborg .....	1,372	148	327
Randers .....	1,132	278	326
Kolding .....	1,903	291	309
Nakskov .....	2,459	306	304
Vejle .....	956	194	283
Horsens .....	1,166	210	280
Korsør .....	1,585	256	279
Køge .....	1,233	131	270

In the financial year of 1934/35 (1st April 1934—31st March 1935) the current receipts of the ports were: —

	Total Mill. kr.	Of which harbour dues Mill. kr.
Port of Copenhagen .....	5.2	3.2
Municipal harbours in the islands .....	5.5	4.4
— in Jutland .....	8.0	5.5
Harbours in rural districts .....	0.9	0.7
State harbours .....	2.5	1.9
Total .....	22.1	15.7

The receipts of the Copenhagen Free Port included in 1934 : quay dues 0.4 million kroner, rent 0.7 million kroner, and warehouse dues 0.6 million kroner. For all ports (including the Free Port and the ferry ports) the revenues from quay and tonnage dues in 1934/35 were 16.1 million kroner.

## RAILWAYS AND FERRIES

The main communications of Denmark with foreign countries are: with Germany the Copenhagen—Gedser route, with a steam-ferry crossing for passengers and trains from Gedser to Warnemünde, whilst the communication by land is via Padborg, in North Slesvig. With England and France the main lines of communication are the regular daily steamship and motor ship services from Esbjerg, while with Sweden the lines of communication are the steam-ferry services Copen-

hagen—Malmö and Elsinore—Helsingborg. The latter route is also one of the main lines of communication with Norway. There are also regular services to Norway and Sweden from Frederikshavn.

Connections between the various parts of the country and between Copenhagen and abroad have lately been greatly improved by the building of two long bridges, the Little Belt bridge between Jutland and Funen, which was opened in 1935, and the Storstrøm bridge between Sealand and Falster, which is expected to be opened in 1937.

There are about 5,200 kilometres of railway in Denmark, of which about 2,500 belong to the State, while about 2,700 (mostly branch lines of purely local importance) are run privately. The expression *private* lines is, however, not a very apt one for these; though formally they are run by private companies, nearly all the shares belong to the State and the towns, and thus hardly any private capital is tied up in them. The following table shows the importance of the railways to the traffic: —

1935—36	No. of Journeys Mill.	Goods and Cattle Mill. tons	Receipts Mill. kr.	Expenditure Mill. kr.
State . . . .	44.5	4.5	113.8	131.0
Private . . .	10.5	2.5	19.6	21.3
Total . . .	55.0	7.0	133.4	152.2

The number of journeys made has of late years increased considerably for the State railways, mainly as a consequence of traffic developments in the Capital and environs, decreasing slightly for the private railways; now it amounts to about 55 million, of which 80 per cent. are made on the State railways. That the number of railway journeys apart from the Copenhagen local traffic has not increased during the past few years, despite the ever-increasing traffic as a whole, is due to the fact that a constantly increasing part of it is being carried by automobiles, particularly motorbuses, as the next section will show. The quantity of goods carried by rail has been fairly steady in recent years — this quantity is very considerable, about 7 million tons in all, or, in spite of the relatively great importance of coastwise shipping in this country, three times more than goes by water. More than



half of the receipts of the railways is derived from the goods traffic.

The total capital invested in railways was, in 1935, 666 million kroner, of which 499 millions were in the State railways.

#### AUTOMOBILE SERVICES, AIR TRAFFIC, ETC.

Denmark has in all 135,000 motor vehicles, 27,000 motor cycles and 4,600 side-cars. The country's comparatively flat surface and the close network of highways offer very good conditions for the use of these means of conveyance, and Denmark is in consequence very well supplied, there being one automobile to every 23 inhabitants. Motor vehicles are not only used to a great extent by private owners but also very extensively in regular services. The number of motor omnibus services in 1936 was 823, distributed over the whole country, so that various bus routes run from practically every town. In several towns motor omnibus stations have been established, with waiting rooms, petrol stores, etc. The total length of these services was about 21,000 kilometres.

This extensive motor traffic has naturally brought a keen competition upon the railways, but on the other hand has meant very great improvements in the local means of conveyance and a considerable increase of commercial and tourist traffic all over the country. It has also involved a very considerable increase in the cost of widening and maintaining the roads, to meet which the State has imposed various special taxes on motors. There are in all 7,700 kilometres of main roads and 44,000 kilometres of by-roads.

As in most other countries, aerial traffic has also grown very extensively of late years, and the importance of Copenhagen as the centre of the international air services in Northern Europe is continually increasing. There are now daily services between Copenhagen and practically all the large cities of Europe.

The Copenhagen—Malmö, Copenhagen—Hamburg and Copenhagen—Berlin services are maintained all the year round together with the foreign Swedish-Dutch line to Amsterdam/Paris-London and on most of the other routes from April-May till the end of October.

In 1936 there were 5,455 arrivals at the Kastrup Airport near Copenhagen, and a similar number of departures for destinations abroad. A total of 32,653 passengers was carried, besides 271.7 tons of baggage, 163.8 tons of other goods, and 120.9 tons of mail to or from other countries. An inland service between Copenhagen and Aalborg was opened in the spring of 1937.

## POST, TELEGRAPH AND TELEPHONE

In Denmark the postal service is solely under State management, the State having a monopoly in this respect. Mail is delivered daily to every farm or house all over the country. On March 31st, 1936, there were 248 permanent post offices and 1210 sub-postoffices.

In the financial year of 1935/36 the Danish post office carried about 301 million letters (about 263 millions of which were inland), 272,000 money-letters, about 10 million parcels and 265 million newspapers. Furthermore, there were handled about 5 million postal orders, C. O. D. forms and collections, to a total of 235 million kroner. The post-office *giro* system of accounts is being more and more adopted by the population, there being 23,000 accounts in 1935/36, and the total turnover in them was 7840 million kroner. There were daily air mail despatches to most large European cities in 1936.

The telegraph service, too, is run by the State. On March 31st, 1936, there were 1006 telegraph stations and a total of 12,095 kilometres of lines. A total of 3.2 million telegrams was dealt with, 0.9 million of these being inland messages, 1.5 between Denmark and other countries and 0.7 transit messages. Denmark has a great exchange of telegrams especially with Great Britain, Germany, Sweden and Norway.

Since 1927 the post office and telegraphs have been run together, and in 1935/36 the receipts were 70.0 million kroner.

Apart from the ordinary telegraph stations there are 551 wireless stations, 485 of which are on board ships. At the Copenhagen, Blaavand, and Lyngby wireless stations about 341,000 telegrams were dealt with in 1935/36.

As regards the telephone system, the State attends to the interprovincial service while the local services are carried on

by private companies with Government concessions. Only in North Slesvig is the local service run by the State.

There are six private companies, with a total of 314,000 subscribers and about 1,907,000 km. of lines. Through the private telephones a total of 616,000,000 calls were dealt with.

The private companies gave a total profit of about 9.7 million kroner, of which 6.5 millions were accounted for by the Copenhagen Telephone Co. Ltd.

Denmark is exceedingly well supplied with telephones, there being a telephone for every 11—12 inhabitants.

Under the Act of March 13th, 1926, broadcasting was taken over by the State. In the year 1935/36 the number of registered receiving sets was about 623,000, as compared with 580,000 the year before.

The receipts of the State radio broadcasting, mostly derived from licences on receiver sets, were 5.9 million kroner in 1935/36 and the expenditure was 4.4 millions.

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## SOCIAL CONDITIONS

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As in most other countries, there is a very close connection in Denmark between general industrial and economic developments and the expansion of social legislation. From the middle of the nineteenth century began an industrial growth which gradually created a working population under looser and more uncertain economic circumstances than before, and it was because of this that the need for social legislative measures arose. In the beginning of the 1870's the trade unions made their appearance, but for a time they were of minor importance, and, apart from a few workmen's protection Acts of limited scope, it was not till the nineties that social legislation began in earnest in Denmark. During the present century the number of questions taken up by Parliament has been steadily increasing, especially in post-war years, the result being that on the whole Denmark may be said to be on a level with the most advanced countries.

The government that came into power in 1929 (Social-democratic-Radical) included in its programme the concentration and simplification of the Danish social laws. That plank in its programme was brought to realization by the Social Reform Acts that came into force on 1st October 1933. Their principal substance covers the fields of Public Assistance and Social Insurance, comprised in four Acts of Parliament dated 20th May 1933, which have taken the place of the huge complex of statutes that had previously formed the law on these subjects and in the course of time had become all too complicated. These four Acts are: Public Assistance, National Insurance, Accident Insurance, and Labour Exchanges and Unemployment Insurance, etc. Besides codifying the laws, the new Social Reform has established a systemization and simplification of our social legislature. The sphere of social in-

insurance has been extended by provisions as to compulsory insurance and by including the care of the aged under the insurance scheme, whereas it had previously been arranged on the principle of public relief (but with fixed rates after 1923). In public assistance the discretion of the local authorities has been restricted in favour of a legal right to assistance and the fixing of that assistance in accordance with rates laid down by the Act. The former categories of relief which involved the recipient in loss of certain civil rights have been cut down. The administration, which especially in the case of public relief was scattered and not at all uniform in its working, has been so centralized that now it is looked after by one authority in every "commune", the Social Committee. The rules governing the distribution of the expenditure have been changed, the State having shouldered the cost of relief that was formerly borne by the communes, whilst the expenditure they now have to bear is distributed according to new principles which facilitate the calculation of the share to be carried by each commune and make the distribution less arbitrary than before.

Below is a brief summary of the various sections of Danish social legislation.

### PROTECTION OF WORKERS

The first Act of Parliament for the protection of workers was passed in 1873, and dealt especially with the restriction of the work of children and juveniles in factories and workshops. In 1889 there came a special Act with regulations as to the fencing of machinery in factories, etc., and, by the Acts of 1901 and 1913, the various regulations in force were drawn together and given a somewhat wider scope, with the result that the latter Act, with one or two later amendments, contains all the regulations now in force as to work in factories, workshops, etc.

The Factory Act empowers the Government inspectors to demand good hygienic and sanitary conditions at the working places. Special regulations have been drawn up for a number of the larger industrial branches, with detailed instructions as to premises, etc.

By the Factory Act of 1873 work was forbidden for children under ten years of age. The age limit was gradually raised and, according to the regulations now in force, children under fourteen are prohibited from working in handicraft, industrial or transport trades. For juveniles between 14 and 18 years night work (from 7 pm. till 6 am.) is as a rule prohibited, whereas there is no prohibition against female night work in industrial workshops.

For four weeks after child-birth women must not work in a factory under the Factories' Inspection unless there is a medical certificate to the effect that there is no danger to the health of the mother or child. During the period when she is not allowed to work she may receive public assistance if she maintains the child, in so far as she has not a right to the confinement assistance provided for in the Act on Social Insurance and obtainable through the Sick Clubs, and this support does not involve the disabilities of Poor Law Assistance.

A separate Act of 1919 introduced the eight hour day for trades with regular day and night shifts. As a principal rule, work on church holidays is forbidden in industrial concerns, but otherwise legislation in Denmark contains no general rules as to the working hours of adult workers in private concerns. In practice, however, the eight hour day has been almost universal since 1919 through voluntary agreements between the organizations of the employers and the workmen. In the preceding years the working day was generally nine or ten hours. A special Act of 1920 prohibits night work in bakeries from 8 pm. to 4 am., although this prohibition does not apply to rye-bread factories with day and night shifts, nor to the work of independent bakers in their own establishments or those in which only the employer or his wife work.

As to shops the Act of 1932 now in force prescribes as a principal rule that they shall be closed on Sundays and church holidays. A fixed closing time is also prescribed for weekdays.

Regarding apprentices, there is a separate Act of May 6th, 1921, which provides for the setting up of contracts in writing and contains regulations as to training, sickness insurance (which rests upon the master) and various measures of protection for the apprentice.

The Act of May 6th, 1921, on the legal position of master

and servant, has as its objects the adjustment of the legal status of the parties and the ensuring of a certain amount of protection for the servant.

According to the Seamen's Act of May 1st, 1923, children under 14 years may not be employed on board ships, and persons under 18 years may not work as firemen or coal trimmers. The Act also contains various rules regarding the payment of wages and the right of seamen to medical attendance during sickness.

Finally, there is a special Act of April 1st, 1912, concerning the protection of foreign workers (Polish season workers, especially employed in sugar-beet growing).

## WORKMEN AND EMPLOYERS

At the beginning of the seventies the first trade unions were started in Denmark. During the first twenty years this movement made only slow progress, but since then developments have been rapid and, at the end of 1935, there were about 437,000 workers organized in the trade unions. Unskilled labour and women are also well to the fore in trade unionism, while of late years shop assistants and clerks, as well as farm labourers, have formed important organizations; the various groups of State employees have also set up organizations which are continually becoming more comprehensive and centralized. Most of the trade unions are amalgamated into a national organization covering the whole country: The Joint Association of Trade Unions, which was established in 1898.

The employers' associations have grown up parallel with the trade unions, and the central organization: The Danish Employers' Association, which was started in 1896, now comprises practically all industries and handicraft trades. In 1935 the members of the association employed about 160,000 workers.

Since 1899, when a general conflict between employers and men was settled by means of an agreement between the two principal organizations, the employment of arbitration in the settlement of disputes concerning the interpretation of agreements, etc., has been general. One stipulation of the agreement was that a special arbitration court should be set up for the

settlement of all legal disputes regarding agreements entered into, while rules were laid down regarding notice of strikes and lock-outs. In the various trades a system of trade arbitration boards was gradually established. By the Act of 12th April, 1910, the arbitration court was replaced by a public institution, the Permanent Arbitration Court, which acts as a tribunal for the settlement of legal disputes regarding collective agreements. The principal organizations of the employers and the men each choose three of the members of the court, while the president, who must be a jurist, is ordinarily chosen by the six other members. In 1910 a public Conciliation Board was established which, by means of mediating between the parties, tries to prevent the stoppage of work on the expiration of labour agreements. The Act now in force dates from 1934.

In the years around the end of the war, when the violent reaction after the trade boom set in, there was a very large number of serious conflicts of far-reaching extent; in 1919, 900,000 working days were lost, in 1920 and 1921 about 1.3 million, and in 1922 about 2.3 million working days.

Since then, the machinery of both public arbitration and conciliation and the adjustment of wages according to the cost of living as outlined below, have made for very peaceful conditions on the labour market, except for a conflict in the spring of 1925, involving the loss of about 4 million working days. In 1934 and 1935 there were only 38 and 14 labour stoppages respectively in the whole country (practically all of them strikes), the days lost totalling 146,000 and 14,000. The next conflict of any dimensions only came in 1936. It affected about 100,000 workers and caused a loss of over  $2\frac{1}{2}$  million working days; it was settled by the award of a Court of Arbitration set up for the purpose in pursuance of the Act of 29th March, 1936.

During the war the widespread practice was introduced of calculating wages in accordance with the official cost of living index. Lately, however, efforts have been made to return to a less automatic regulation of wages, and only few agreements now contain clauses stipulating wage adjustments according to cost of living fluctuations during the term of the agreements.

During the first years of the Great War, wages did not keep pace with the increase of prices, but during the latter part of it



they reached a level somewhat higher than the general percentage of increase.

Afterwards for a number of years they mostly kept pace with the officially recorded cost of living. The price fall which set in conjointly with the economic depression throughout the world has, owing to the fact that nominal wages have remained practically unchanged, had the effect that real wages rose heavily from 1929 to 1931 and 1932, and despite the higher price levels since then, with the consequent fall of real wages, they are still higher than they were before the world crisis made its effects perceptible in Denmark. The average earnings per hour of all workers in Denmark (men and women) at the end of 1935 were 134 Øre. For skilled workers the rate was 156 Øre, for unskilled 131 and for female labour 87 Øre.

#### SANITATION, CHILD WELFARE, HOUSING, ETC.

For the purpose of maintaining ordinary hygienic standards there is a Sanitary Authority, consisting of a central organ: The National Health Service, and a number of medical officers, each of whom has his district and exercises ordinary hygienic supervision. There are also local organizations in the form of municipal boards of health in every town and a number of rural districts.

The public hospital service is highly developed in Denmark, both as far as the Government, and, especially, as far as the municipal hospitals are concerned. There are altogether in the ordinary public hospitals 22,400 beds, and there are also special sanatoria for consumptives with accommodation for 2,400 patients, lunatic asylums with accommodation for 7,900 and homes for the mentally deficient 3,700, etc.

For the protection of children in unfortunate circumstances extensive legislation has been passed. The regulations are now contained in the Public Assistance Act of 20th May 1933. There are, for instance, boards of guardians who may decide that children be taken from their homes and if necessary placed in suitable institutions; adoptive children and those born out of wedlock are under supervision and, as a preventive measure, the Government grants money towards the upkeep of creches, homes, etc. Furthermore, meals are provided at some schools.

Until the outbreak of the Great War the supply of dwelling houses had principally been effected through private building enterprise, although from the end of the nineties there had been some co-operative building, especially in the environs of the capital. Owing to the rise of prices during the war and the future risk in the building business a large number of private builders withdrew. As a consequence there was a great scarcity of dwellings, especially in the towns, and, in order to remedy this, great sacrifices were made by the State and the municipalities in order to get houses built. Under these circumstances the building activities of the municipalities themselves and of the co-operative concerns came very much to the fore and have since been continued, although private building has greatly increased again of late.

In accordance with a separate Act of 1933 regarding support for house building, the State was empowered to grant loans towards building to a total sum of 30,000,000 kroner.

In 1916 regulations were introduced by law governing the increase of house rents. This legislation has now ceased to operate. From 1916 to the end of 1935 rents had on an average increased by 96 per cent. in Copenhagen and by 114 per cent. in the provincial towns.

## TEMPERANCE LEGISLATION

In Denmark, temperance legislation is mainly limited to regulations regarding the number of places where alcoholic beverages may be consumed, and as to trading in spirits. There is no prohibition, but alcohol is very heavily taxed. The voluntary temperance movement has attained considerable proportions, and there is a very large number of societies all over the country whose members (to a number of about 118,000) pledge themselves not to drink spirituous liquors. A "Government Adviser on Temperance" was appointed in 1933. The per capita consumption of (pur) alcohol, which in the years immediately prior to the war was  $6\frac{3}{4}$  litres of 100 per cent. annually, is now  $2\frac{1}{2}$  litres. The heavy taxation combined with the improvement in the sobriety of the population have produced this favourable change.

## ACCIDENT INSURANCE

An Act of Parliament of 1898 contained provisions concerning the duty of employers to pay compensation to workers injured in the course of their work. It applied only to large industrial establishments, but subsequent laws have greatly widened the scope of compensation. The present law of 20th May 1933 lays down that all employers must keep their workers insured against accident. This insurance must be effected with a company approved by the Ministry of Social Affairs, either an ordinary insurance company or a mutual company established for the purpose. In the event of an employer's failing to insure his work-people, an injured worker does not lose his compensation. The employer is personally liable, and, should he be unable to pay, all approved accident insurance companies jointly have to pay the compensation.

In the event of injury the worker receives both daily allowance and invalidity compensation; occupational diseases such as pitch and mercury poisoning, anthrax, etc. give the right to compensation as well. Should the injured man die, the family receives burial assistance and compensation. Compensation in the event of complete invalidity is paid in the form of a pension, which must not exceed three-fifths of a year's earnings. For reduced earning capacity the worker receives a pension corresponding to the percentage of invalidity. The Act provides, however, that if the pension is calculated on a degree of invalidity of lower than 50 per cent., it must be commuted by a lump sum, whereas if it is above 50 per cent., commutation is optional.

The question of whether there has been an accident under the Act, and of the amount of compensation payable, is decided by the Directorate of Accident Insurance under the Ministry of Social Affairs; its decisions are appellable to the Council of Accident Insurance, whose awards are final.

## UNEMPLOYMENT INSURANCE

At an early date some trade unions had taken up the problem of helping the unemployed, endeavouring to solve it by insurance in special "unemployment funds"; the trade unions being unable to cope with a general solution of the problem, the public

stepped in and in 1907 passed a law granting public contributions to state-approved unemployment funds. The trade unions have made it obligatory for their members to join the unemployment fund connected with their own particular trade. In this manner the unemployment funds have secured a number of members who, being in good employment, would have remained outside if left to their own devices. In this manner the insurance has been made cheaper. The funds are under the supervision of a Directorate of Labour under the Ministry of Social Affairs, but otherwise they are independent. They are managed in conjunction with the trade unions, which means lower costs of administration. At the close of the financial year 1934/35 there were 70 state-approved unemployment funds with a membership of 379,000; 68 of them are restricted to certain trades but cover the whole country, one is local in character, and one is not restricted to either trade or locality.

Under the present Act of 20th May 1933 the income of the funds consists of members' contributions as well as contributions from state and commune. The public contribution is divided between the state, paying two-thirds, and the communes, paying one-third, which is charged to the Refunding Alliance between them. The public contribution is graduated according to the average income of the fund members, whereby it is highest for funds whose members have small incomes and lowest for funds whose members have large incomes. In the year 1934/35 the total income of the funds was about 60 million kroner; of this the state and commune contributions amounted to about 26 million kroner, the members contributing the rest themselves.

Whereas under ordinary conditions before the war and during its first years the unemployment funds were in a position to defray expenses according to the original basis of the insurance, the state had to grant considerable sums from 1917 to 1927 to relieve the extraordinary unemployment.

At the beginning of 1922 there was a special State Unemployment Fund which, until the passing of the Act of 1st July 1927, was to step in with assistance, financing of emergency works, and courses for the unemployed in periods when unemployment reached extraordinary dimensions. The relief, however, was paid out through the local unemployment funds.

The Act of 1st July 1927 abolished that extraordinary help. Instead, the endeavour was made by means of grants from the State Unemployment Fund to induce the local unemployment funds to establish "crisis funds" to give relief in periods of extraordinary unemployment. By the Act of 20th May 1933 the establishment grant from the State Unemployment Fund and the annual contribution from state and commune were increased for the purpose of encouraging the formation of crisis funds. It was also decided that the relief payable by the crisis funds should be of the same amount as the ordinary relief, whereas according to the Act of 1927 it was not to exceed two-thirds of it. As a consequence, all unemployment funds have established crisis funds, and in the year 1934/35 they had a total income of over 11 million kroner, of which state and communes contributed about 5 millions and the members the remainder.

The resources of the State Unemployment Fund are secured by contributions from employers, who according to the Act of 1933 pay kr. 4.50 per whole-year worker. The annual deficit which nevertheless may be made can be covered by the Treasury up to certain limits. The fund is administered by a committee, whose members are representatives of both employers and workers.

The public *Labour Exchange* is closely connected with unemployment insurance. It has branches all over the country and they work in close collaboration with the unemployment funds, who notify the Exchange whenever a member loses his employment. Every branch is managed by a committee of the various interested parties. The Directorate of Labour already referred to has the supervision of the Exchanges. Finally, an effort has been made to prevent the private employment offices from charging exorbitant fees for their services, partly by totally prohibiting their activities in certain fields, and partly by imposing certain conditions on their work and making them subject to supervision. Of the communal outlays on the public labour exchanges the state refunds one-third.

## NATIONAL INSURANCE

In contradistinction to the legislation on accident and unemployment insurance, which has particular reference to the work-

ing classes, National Insurance is for the entire population, for it aims at providing the necessary assistance to the sick, invalids and the aged.

The historical background of the national insurance system was the voluntary sickness insurance for the poor, which was carried on with public support. This *voluntary health insurance*, which prior to the Social Reform had spread to about two-thirds of the population, has been preserved. In order to benefit from this insurance the members must be "unpropertied". In explanation of what this term covers, an Order is issued every three years containing instructions with regard to the limits of income and wealth and other circumstances which must be taken into consideration. In general, the limit of income is what corresponds to the year's wages of a skilled worker when fully employed. It is adjusted annually in accordance with statistical information as to the average time wages of skilled workers and is also fixed separately for various groups of communes where the level of income differs.

In addition to retaining the voluntary health insurance for the unpropertied, the National Insurance Act of 1933 orders all persons between 21 and 60 years of age to become members of an approved sick club or a state-controlled sickness benefit society, provided that their general health is such that they can be admitted; this order, however, simply means that such persons shall be passive, "contributing" members of one of the said institutions, whereas it continues to be a voluntary matter whether or not a person wishes to be a health-insured "participating" member. "Propertied persons" wishing to be effectively health insured may be admitted to special sections of the approved sick clubs, in which they do not share in the special benefits which the clubs are enabled to give the unpropertied members by public grants. A contributing member may at any time, regardless of the state of his health, demand to be transferred as a participating member, provided that he complies with the conditions. Similar regulations as to free right of transfer also apply between sick clubs and sickness benefit societies.

The real significance of the National Insurance Act's having introduced this general obligation to be a member of a sickness insurance institution lies in the fact firstly that the Act also

introduced a general and compulsory invalidity insurance in conjunction with it, the premium being collected together with the sick-club contribution; and secondly, that no one can obtain the old age pension without having been a member of one of these institutions. Thus the questions of securing help for the sick, [invalids and aged are joined together in a common insurance system, but in such a manner that the public bears a large part of the cost. This applies especially to old age pensions, which are borne entirely by state and communes.

The first legislation providing for state grants to the sick clubs was passed in 1892. To obtain a grant the club must place itself under state supervision and have its rules approved. Generally a sick club must have at least 200 members. There are about 1600 approved sick clubs, most of them being relatively small. The total number of unpropertied, participating members is over 2 millions.

In case of sickness the club provides entirely or partly free medical attendance and hospital treatment, maternity benefit and daily allowances for a certain number of weeks (up to 26). Many of the clubs have introduced compulsory burial insurance for their members.

The state makes an annual grant to the clubs of 2 kr. per unpropertied participating member and a sum corresponding to one-fourth of the club's outlays for medical attendance, treatment outside of the home, daily allowances, maternity benefit, dental treatment, and treatment at convalescent homes, as well as a refund of certain outlays for medicines. The state also makes grants for chronic invalids, and the communes do the same. The latter allow sick-club patients hospital treatment at half fees, defray the cost of their conveyance, and refund certain outlays of the sick clubs for daily allowances in maternity cases.

In 1935 the number of sickness days was 12.9 millions, of which 4.9 millions were for males, 6.4 for females, and 1.6 millions for children. Of the 69.1 million kroner representing the total income of the sick clubs in that year, members' contributions amounted to 47.3 millions, state grants 17.7 millions and communal grants 1.6 millions.

With certain exceptions *invalidity insurance* is compulsory for all between 21 and 60 years of age. The annual premium

is 7.20 kr., though those who have insured before the compulsory age get off with a lower premium all through life. The premium is also somewhat lower for married couples.

No insured person can obtain invalidity pension unless his earning capacity has been reduced by at least one-third. The Invalidity Insurance Court decides the degree of invalidity.

The invalidity pension has the same basic annual sum as the old age pension, of which more later. There are certain supplements, however, and, in the event of severe invalidity, an additional supplement. On reaching the age of 65 the invalidity pension is exchanged for the old age pension.

Very interesting are those regulations which aim at taking curative or preventive measures to prevent the invalidity evil, for example by making it obligatory on physicians and school authorities to notify diseases involving or expected to involve a reduction of earning capacity.

The number of people insured against invalidity in 1935 was 2.3 millions, and the number receiving invalidity pay 29,000. The cost, 21.8 million kr. in all, is covered by 9.9 millions in premiums and 3.7 millions contributed by employers, while the state and communal grants together amounted to 8.2 millions.

Denmark has had *old age pension* legislation since 1891, and then as now it was based upon the cost being met by the Public. In 1922 graduated pensions were introduced, varying with the income, and at the same time the normal age for becoming eligible for the pension was raised from 60 to 65.

For married couples where both husband and wife are eligible for the old age pension the National Insurance Act provides an annual basic sum of 1086 kr. in Copenhagen, 912 kr. in provincial towns, etc. and 702 kr. in the rest of the country. For other married persons and for persons living alone the basic sum is 732, 606 and 468 kr. respectively for men, and 678, 564 and 432 kr. for women. Various supplements are payable over and above the basic sum according to the cost of living index. The normal qualification for being entitled to the old age pension is the age of 65. If a person waits a few years before applying for it, the annual basic sum is increased proportionately. On the other hand, the basic sum is reduced in proportion to the person's income and capital. If the income (which is calculated according to certain rules) exceeds 40



per cent. of the basic sum, the person is not entitled to old age pension.

There were 139,000 people in receipt of old age pension in 1935; 21,000 of these were married couples both receiving the pension. Of the total population above the age of 65, just half were receiving pensions, viz. 43.9 per cent. of the men and 52.0 per cent. of the women. For 1934/35 the total sum paid to pensioners was 77.9 million kroner, of which 65.1 millions represented the basic sum, 3.2 millions the various supplements, whereas 2.7 millions were granted as sickness help and 6.9 millions to cover the cost of pensioners' keep at homes for the aged. Of the total sum, the state paid four-sevenths and the communes three-sevenths.

According to a an amendment which comes into force in October 1937, the eligible age is reduced to 60 years, which means a return to the normal limit in force prior to 1922.

## PUBLIC ASSISTANCE

The regulations collected in the Public Assistance Act are for the purpose of providing help in necessitous cases which cannot come in under an insurance system; it is therefore a supplement to the three social insurance acts.

An important section of the public assistance scheme is intended for safeguarding children during their growing years, and for this purpose the Act provides for supervision of children boarded out, adoptive children, etc. Preventive measures of various kinds are essayed. Where these prove inadequate, and where the character or behaviour of the child or conditions in the home call for it, the child may be taken away and placed under a board of guardians appointed by the communal council and under the supervision of a National Council of Child Welfare. In 1935 there were 5973 children provided for in this way, and in the same year a total of 8336 children (scholars) were placed in children's homes, reformatories, etc., of which the country has 338.

In order to secure the necessary sustenance for children of single bread-winners, the Act lays down various rules concerning the duty of the father (or mother) to contribute, and also rules whereby the Public may advance funds for the support of the

child, with the right to recover from the responsible parent, or, in the case of children of widows or widowers and of orphans, regular direct assistance towards the keep of such children.

In 1934/35 advances were made in respect of 38,989 illegitimate children and 16,344 legitimate children. The number of legal providers was 40,708 and 9695 respectively, and they refunded 42.7 and 23.3 per cent. of the outlay. The remainder, 6.5 million kroner, represented the Public's definitive outlay on this measure.

In the same year 8801 widows received assistance for 18,389 children, and 1556 widowers for 4251 children. In addition, 661 orphans were supported. The total cost was 3.3 million kroner.

The Act also authorizes various expenditure for the direct or indirect benefit of children, including maternity help of certain kinds as well as assistance before and after confinement, an allowance of milk for nursing mothers, assistance for step-children, and grants towards free meals in the schools.

In so far as public assistance benefits adult persons, the principle of the Act is to keep apart as many special cases as possible where there are definite causes of their need, and where consequently the assistance can be given according to fixed rules and without legal disabilities. A large part of the assistance under this so-called *Special Assistance* is naturally in the form of help to the sick. For the most important of these the expenditure in 1934/35 was:

	Mill. kr.
Chronic invalids .....	2.3
Medical and dental assistance .....	1.3
Continued sick-club benefit .....	1.2
Care of consumptives.....	1.0
Assistance towards medicine, etc.....	0.7
Communal sick nursing.....	0.7

Another important form of Special Assistance is the care of deaf mutes, the blind, mentally deficient, insane, epileptics, cripples and deformed. In 1934/35 there were 18,500 of these, including 9300 insane and 7500 mentally deficient, in institutions or under supervised care, and the state expenditure on them was 14.5 million kroner. The total Public expenditure on Special Assistance and Special Care amounted to 25.4 million kroner.

In cases of need where assistance cannot be given under the rules for Special Assistance, application must be made for the so-called communal assistance. Normally this is given without its involving legal disabilities except the refunding of the amount and exclusion from certain kinds of Special Assistance. But if the need for assistance increases so much that it acquires the character of poor relief properly so-called, it normally means that the person temporarily loses his franchise and eligibility for political election. For certain categories who have themselves to blame for their poverty the assistance is given only in the form of ordinary poor relief, with its more severe legal disabilities. The cost of communal help with and without loss of the franchise, etc., in 1934/35 was 52.2 and 4.3 million kroner respectively, and poor relief 3.1 million kr.

The numbers of people receiving aid under the Public Assistance Act were: 79,530 Special Assistance, 186,613 Communal Assistance without loss of the franchise etc., 7393 Communal Assistance with loss of the franchise, and 6041 Poor Relief. The total number receiving assistance of one or more of these categories in 1934/35 was 230,021. This, however, does not include a rather large number who only received help towards paying their contributions to sick club or unemployment fund. In addition, assistance was given to foreigners etc. in 2559 cases, and in 278 cases to Danes abroad.

## THE GOVERNMENT EMIGRATION OFFICE

The Government Emigration Office was established in pursuance of the Emigration Act of 2nd May 1934. Its address is No. 24, Amaliegade, Copenhagen, telegraphic address: Emigration.

Conditions in various parts of the world, with unemployment and crisis prevailing in most places, have made their mark upon the immigration regulations of the different countries, including those overseas which are the goal of most emigrants. In Denmark there has scarcely been any emigration in recent years; indeed, the number of emigrants from Denmark to overseas countries in 1936 was only 185 all told. Nevertheless, developments in the majority of European countries and overseas in the years since the Government Emigration Office was

opened seem to indicate a probability of a resumption of emigration from Europe to an extent which will fairly correspond to requirements. On the other hand it seems likely that emigration in future will proceed along somewhat different lines than formerly, for countries overseas seem to be more inclined to admit emigrants who have previously to some degree been sorted out in their home country.

The Government Emigration Office is the centre for the handling of all matters coming under the heading of emigration, both individual emigration and group settlement, if that form should prove feasible later on.

The Chief of The Emigration Office is responsible that chances for Danish emigrants are utilized to the full, and he must take the initiative in the consequent negotiations and the measures to be taken.

It is his duty to procure all possible information necessary or useful to emigrants concerning conditions in countries to which emigration from Denmark proceeds or can proceed, and all such information must be made accessible to the public in what he considers to be the most advisable manner.

In consultation with the Chief of Police in Copenhagen the Chief of the Government Emigration Office has made recommendations as to regulations which, apart from provisions contained in the legislation respecting navigation and ship inspection, are considered necessary for the protection of emigrants on the voyage, including regulations for the safeguarding of women and children; the final regulations will be fixed by the Minister of Social Affairs in due course.

The records of emigrants kept by the police were transferred to the Government Emigration Office in June 1935. They comprise all direct and indirect conveyance from 1868 to 1934. At the same time the Emigration Office took over the handling of enquiries made to the archives for information of importance to emigrants and their families.

The Office now draws up the quarterly statistics of overseas transportation from this country, which formerly were drawn up by the police.

Since its opening the Government Emigration Office has established contact and co-operation with a number of similar

institutions in other European countries; through the Danish Foreign Office it is also in communication with the Danish representations abroad, from which information is received as to immigration regulations and possible chances for Danish emigrants in the countries concerned.

Disregarding the fact that there will be no question of propaganda or encouragement for emigration by either Government or the Emigration Office, it is possible to say that from earliest times emigration has been of vital importance to the Scandinavian people and actually may be said to have formed the foundation for the stage of development to which these countries have attained. This also applies to the position as it is today and as it will be in the future.

Nevertheless it must rest with the individual to decide whether he has such a craving to emigrate that he will make a personal effort to get that craving satisfied. If he will, the Government Emigration Office is ready with advice and guidance to the limit of its capacity.

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## MUSEUMS AND SCIENTIFIC INSTITUTIONS

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### ARCHAEOLOGICAL AND HISTORICAL COLLECTIONS

In Denmark there are many museums that contain memories of the country's once illustrious history. They are not arranged as most national museums are, with endless rows of objects of special interest to students of applied or decorative art or of culture history, but present to the visitor, who is conducted through a succession of rooms practically complete with furniture, a chronological picture of the national history by means of portraits of the prominent men and women of the periods, select historic furniture, works of art, and objects of personal use redolent of the past.

*The Museum of National History at Frederiksborg.* On the great hunting estates in North Sealand King Frederik II built himself a hunting-seat. In it Christian IV was born, and afterwards he determined to erect Scandinavia's most magnificent castle there; from 1600 to 1620 the work went on, resulting in the edifice as now seen — as far as externals are concerned. Being constantly in use by his successors as a residence and place of coronation, the interior naturally underwent great changes in the course of time; the chapel alone remains the same. Conflagrations destroyed the remainder of the castle, the last occasion being in 1859, but it was restored and furnished as a royal palace, essentially through the munificence of the old brewer J. C. Jacobsen and under the guidance of the architect F. Meldahl.

It was also on J. C. Jacobsen's initiative that the castle received its present character, a festival building for the Royal House on great occasions, otherwise a framework around a collection intended to illustrate and personify the history of Denmark through the ages. For the purpose of

realizing his plan J. C. Jacobsen presented the Museum with a share in the Carlsberg Breweries through the medium of the Carlsberg Foundation. The Museum is arranged chronologically, with pictures and portraits of the period of each king, placed together with contemporary furniture and works of art. In this way the Museum contains not only a selection of the best and most popular Danish paintings, but also many portraits by eminent foreign artists such as J.-M. Nattier, Louis Jocque, Hyacinthe Rigaud, Alex. Roslin, Frances Cotes, etc. Among the furniture are fine specimens of 17th century carved oak, splendid English and French 18th century pieces, French and Flemish tapestries, and excellent silver. The castle and its collection are now looked upon in Denmark as a national shrine, and about 100,000 admirers visit its halls every year.

*The National Museum* in Copenhagen consists of six sections:

The Danish Prehistoric Section, the Danish Historical Collection, the Danish Folk Museum, the Ethnographical Collection, the Collection of Classical Antiquities, and the Royal Collection of Coins and Medals.

Apart from the Folk Museum, which has now been removed there, the collections have since the middle of last century been displayed in Prinsens Palæ, Frederiksholm Kanal No. 12, which at the present time is being widely extended; parts of the collections will be opened to the public this year.

The Ethnographical Collection comprises the best known assembly of every kind of objects showing the culture of the Eskimos, especially the Greenland Eskimos. Above all, however, the particular and world-renowned value of the Museum is imparted to it by The Danish Prehistoric Collection, more especially the rich muster of Danish relics dating right back to the Stone, Bronze and Iron Ages and dug up out of Danish soil since the foundation of the Museum in 1807.

The Danish Historical Collection is also one of great value. It is supplemented by the Folk Museum, which gives a picture of Danish peasant culture from the middle of the seventeenth to the middle of the nineteenth century, and to which is attached an open-air museum at Lyngby, near Copenhagen, containing specimen-types of farm houses from the various parts of Denmark.

*The Chronological Museum of the Danish Kings in Rosenborg.* In an old castle, "The Summer House in the King's Garden", built 1610—17 by King Christian IV, its exterior the same now as it was then, is the memorial museum of the Danish royal house. Many of the rooms still have the furnishings they had in the seventeenth century. This is where the regalia are kept, including Christian IV's crown, quantities of jewels and other valuables, old royal furniture, portraits of kings and numbers of old dresses, including the earliest trappings of the Order of the Garter.

Rosenborg Castle, which originally was built as a summer house in the gardens, was often occupied by its builder Christian IV. Its fine large banquetting hall made it the natural setting for festivities, and its pretty situation made it a charming residence. It was last occupied by a Danish king in 1801, at the time of Lord *Nelson's* arrival with his fleet and the events that followed upon it.

*The Kronborg Museum*, Museum of Trade and Shipping, was opened in 1915 in rooms in Kronborg Castle (at Elsinore, North Sealand). It contains objects reminiscent of the Sound Dues and Kronborg itself, a collection of portraits of Danish commercial people of earlier times, a section for the present Danish settlements in Greenland and for the older colonies on the coast of Guinea, in the East Indies, especially Tranquebar and Serampur, and in the West Indies. The kernel of the Museum is, however, the Nautical Museum, whose object is to display the development of the Scandinavian ship from earliest times to our day, and also to collect mementoes of the circumstances under which shipping and those who lived by it have worked throughout the ages. To it is connected a section for salvage and life-saving and, in natural connection with the Nautical Section, one for astronomy which is particularly associated with Tycho Brahe, Denmark's most famous astronomer. Finally, the Museum has a section for the Danish navy.

In the course of 1937 the small manor-farm "*Liselund*" on the island of Møen will be opened to the public. This house was built by the architect I. Chr. Lillie for Antoine de la Calmette about the year 1792, and now stands exactly as it did



then, to some extent furnished. A charming little retreat in one of the prettiest parts of the country.

*H. C. Andersen's House* (Odense, Funen). — In the modest dwelling in which, according to tradition, the world-famous Danish story-writer Hans Christian Andersen was born on the 2nd April, 1805, a well-stocked Andersen Museum was opened in 1908. In connection with this house, with its still occupied low-ceilinged rooms, a very fine new museum building was erected in 1930 with a handsome domed hall, the H. C. Andersen Memorial Hall.

H. C. Andersen's house, to which sightseers flock from as far as Japan in the east and America in the west, with its constantly growing collections aims at becoming a fascinating illustration to the poet's autobiography "The Adventure of my Life", and at providing evidence of the continued importance of Andersen's tales to all the peoples of the world.

*Gammel Estrup*, the Museum of Jutland Manorial Houses. An old mansion of brick, dating from the 16th and 17th centuries, lying between Grenaa, Aarhus and Randers in the middle of the great manorial estates of Jutland, has been arranged to hold reminiscences of life at the manors in olden times as well as old Danish furniture and portraits. Gammel Estrup had been in the possession of the Counts of Scheel for centuries.

"*The Old Town*" (Aarhus, Jutland) among all the open-air museums in Scandinavia is the only urban museum, as all the others comprise rural buildings. The museum, which consists of old buildings taken from Aarhus and other towns and rebuilt here, lies in the middle of a park on both sides of a stream. There is a peculiar charm about "The Old Town"; not only has it a lovely situation, but its historically interesting houses are very picturesque in their effect, standing as they do round the town square and in quiet old streets.

Inside the buildings, especially in the Burgomaster's House, there are interiors that show the changing of styles and taste from about 1600 up to the present time, and in many of the houses and workshops of the craftsmen we see how they

managed before the era of machinery and modern technique.

Every year more than 50,000 people visit "The Old Town".

## ART GALLERIES

*The Ny Carlsberg Glyptothek* is a Museum intended for three very different collections, one of antique sculpture, another of modern sculpture, and a collection of Danish and French paintings. This museum is not, however, the first building, which the brewer Carl Jacobsen raised for his works of art.

Its origin goes back to the year 1882, when he enlarged his house at Valby with an annex. At that time the collection was only small and could only fill a single hall, and his idea was not to create a museum, but to procure himself a winter-garden, "where statues could display their beauty among green trees". He changed his plan, however, and instead of a winter-garden he made a hall, where he could set up a frieze by the Danish sculptor Jerichau, and show his statuary. On November 5th, 1882, this collection was opened to the public.

In 1884 most of the sculptures of the National Gallery were destroyed through fire, and Carl Jacobsen and his wife decided to present their collection as a gift to the nation. For that purpose a larger building was required and its situation would necessarily have to be in the centre of the town. Carl Jacobsen himself made a sketch for a building of the same size as the Glyptotheca at Munich. He approached the Mayor of Copenhagen, who though very interested in the scheme, advised him to await better times; but as in the meantime the collection increased, Jacobsen enlarged his annex at Valby, and a new wing with four galleries was erected in 1885, and another wing with two halls and several galleries was added in 1887.

The questions of lighting and exhibiting were continually predominant in Carl Jacobsen's plans, suitable lights for the various sculptures were needed, and he studied these problems with care, and even studied models in foreign countries, including the hall of sculpture at Chatsworth, the property of the Duke of Devonshire, where the light falls obliquely from above through a lantern light. He used this form of light-

ing for the hall he built in 1885, and later for the four rotundas in the new Glyptothek. During these years a great number of antiques had been added to the collection, and Jacobsen felt that the moment had now come to repeat his offer.

As a condition for the donation the founders desired that the town of Copenhagen should provide the site for the building, and that the State and City should contribute 500,000 Kr. each towards the cost of erection. Jacobsen himself gave 250,000 Kr. towards the decoration.

The City Council as well as Parliament were in favour of this proposition, and Jacobsen was authorised to place his scheme before a special committee, who accepted his proposals. The Deed of Gift was signed on March 8th, 1889. The architect, Professor Dahlerup, made a plan for the building. Several sites for the museum were suggested, and finally the present one was chosen. A Committee, with Carl Jacobsen as President, was appointed for the organisation and management of the Ny Carlsberg Glyptothek, and Professor Dahlerup was charged with the erection of the building. In the spring, 1897, the museum was finished; the official opening took place on the first day of May.

The building consists of a main wing, 64 metres long, and two lateral wings of orange-coloured bricks with pediments and pilasters of granite. A large entrance hall divides the middle wing into two equal parts, containing the French and Danish collections. There is also a collection of modern English, German and Swedish art, and the upper floor contains the collection of paintings from the Valby Museum.

Thus "the new Glyptothek" contained only two of the proposed collections, the antiques remained preliminarily at Valby. Then in 1899 Carl and Ottilia Jacobsen made a new Deed of Gift, in which they offered all that was contained in the old Glyptothek to their native country, on the condition that the City provided a site for a new building, and that State and City each furnished 500,000 Kr. towards its erection. Parliament agreed immediately, but as the proposition met with some difficulties from the City Council, Carl and Ottilia Jacobsen offered a gift of a million Kr. This proposition was accepted on November 26th, 1900, a Committee of seven members was

appointed, and three architects were invited to present plans, that of Kampmann being chosen. At the same time Carl Jacobsen could now carry out his old plan of a winter-garden by means of the newly (1902) established Ny Carlsberg Foundation. Professor Dahlerup became the leader of the work, and a large construction with a cupola, loggias and an entrance hall now forms the connecting link between the two buildings. This winter-garden is something quite unique, and gives the Glyptothek its own special character.

The second part of the Glyptothek, Kampmann's building, is a large quadrangular block, containing four wings and a central edifice. The ground floor is of granite and forms a solid base for the long straight masses of brick walls, with large lantern lights on the corner rotundas, and a huge pyramid surmounted by a golden Athena, forming the central part of the western front. This new museum contains an entrance hall, five long galleries and five smaller ones, grouped round the splendid festival hall, constructed of marble in different colours, where statues of Roman emperors and other antiques are placed between the tall and slender columns, and where in the centre the famous Europa-mosaic is incrustated in the floor. From this hall some steps lead up into the Mausoleum beneath the pyramid which, with its ascendant ceiling, black granite pillars, large windows and marble floor, creates an imposing architectural impression. A staircase leads down to the basement floor to the Etruscan collection (the Helbig museum).

This new building was inaugurated on June 27th, 1906. Starting from the left of the entrance we are led back to the art of other ages and countries in such a way that when the entire circuit is completed, we have received a clear impression of the development of the arts in the most important epochs in the history of the antiquity. An attempt has been made to represent the most important phases with selected specimens of the art of the countries which played the leading rôle through the epochs, Egypt, Greece, Rome.

Though from the start the collection was a complete one, yet Carl Jacobsen continued to add to his collections, and desired that his successors should construct new buildings in the courts for the enlargement of the Museum. His wishes have been respected, a new Egyptian gallery was opened in

1921, another building was finished in 1925 containing offices for the administration, studies and a library opened to the public in 1926.

Carl Jacobsen died in 1914; his eldest son, Mr. Helge Jacobsen, from his earliest childhood showed a taste for art, and had a special affection for Thorvaldsen's works, and it was therefore natural for him to collect works of artists who had been Thorvaldsen's pupils or were influenced by him.

Thorvaldsen has his own museum, and the Glyptothek possesses only a few of his works, but Jerichau and Bissen are excellently represented in the Glyptothek, in the galleries that bear their names.

In 1878 Carl Jacobsen went to Paris to visit the International Exhibition and make purchases of modern French art then unknown in Denmark. The first statue he bought was Delaplanche's "La Musique", then Paul Dubois's "Eve", Gautherin's "Le Paradis Perdu", and Millet's "Le Bucheron et la Mort". In 1885 he obtained permission for the Artists Chapu and Gautherin to model the Danish princesses, Queen Alexandra of England and the Empress Dagmar of Russia, during a visit to Fredensborg. It was for these two statues that he made the hall of the Empresses at Valby, and they are now placed in the modern French section in the Glyptothek. Barrias, Delaplanche, Dubois, Marqueste, and many other artists should also be mentioned; they are all represented by masterpieces, but the most interesting sections are those where the works of Carpeaux and Rodin are to be seen. Of the Belgian art of this period many bronzes of its most representative sculptor, Constantin Meunier are shown in a gallery bearing his name.

The collection of paintings has increased in such a degree that French art can now be studied in the Glyptothek from the period of David down to our own time.

The collection of antiques is now the most important in the Glyptothek. The history of its development is one with that of the building itself, united to the history of Carl Jacobsen's life. It begins in 1882. Among the few antique sculptures which Carl Jacobsen possessed at that period there was at least one of important interest, a Greek head from the sixth century, which Carl Jacobsen had obtained from the sale of the collection of the erudite Frenchman Olivier Rayet, known as the

"tête Rayet". Besides this first class original Carl Jacobsen possessed other antique sculptures, in particular the Palmyra collection; the Casali sarcophagus, whose removal to Copenhagen excited considerable resentment in Italy.

One of the most important pieces in the Egyptian section is a head wearing the pointed Egyptian crown remarkable on account of its beauty, and the black hard material that is as unknown as the date of its origin (perhaps XIIth dynasty).

The number of busts, Greek and especially Roman, has made the collection of antique portraits one of the richest in the world. The busts of Roman Emperors in the Roman bust gallery represent emperors of the first three centuries of our era at Rome and illustrate the development of style during this epoch as well as the different types of men who ruled the Roman world. On the opposite side we find busts from the era of the Republic, personalities of marked features, characterised by clearly outlined traits.

The collections are still increasing, the Etruscan section, bronzes, pottery, painted vases, etc. all contribute towards the fulfilment of Carl Jacobsen's wish that the arts of antiquity should be represented in their entirety in this museum.

*The State Museum of Art* in Copenhagen possesses the largest collection of the country's national pictorial art and a very extensive collection of Danish sculpture (in which respects it is supplemented by Thorvaldsen's Museum, the Ny Carlsberg Glyptotek and the Hirschsprung Gallery). In addition, it has a large collection of the paintings of earlier foreign masters, in which the North European schools, especially the Dutch, are best represented. Furthermore, it includes the Collection of Prints with about 100,000 etchings, engravings, wood-cuts and hand drawings. And finally, on the ground floor is the Collection of Casts, with an especially large representation of antique art.

*Thorvaldsen's Museum* is the property of the Corporation of Copenhagen. The building was erected to the designs of the architect Bindesbøll and, with Thorvaldsen's works and collections, forms one unique whole. Most of Thorvaldsen's original models are in the museum, as well as a number of his marble works, some copies of his works in marble, and quantities of his

sketches. It also comprises Thorvaldsen's rich collections of antique coins, gems and other objects as well as his large collection of paintings, which has contemporary art as its nucleus. Thorvaldsen's tomb is in the centre court.

*The Hirschsprung Gallery* of the works of nineteenth century Danish artists contains 529 oil paintings, 188 sculptures, mostly small, and 1700 drawings, pastels and water colours. The building was erected in 1910—11 to the drawings of the architect Prof. H. B. Storck, and includes four large top-light rooms as well as seventeen smaller side-light rooms, equipped with furniture and souvenirs from the homes of the artists represented. By its whole tasteful arrangement, its suitable interiors and its choice stock of art, it gives a peculiarly typical and directly visual impression of Danish art and artistic culture in the nineteenth century.

*The Danish Museum of Applied Art* was founded in 1890 by the Ny Carlsberg Museum Foundation (Dr. Carl Jacobsen) and the Industrial Society in Copenhagen. Its premises are at No. 66 Bredgade, Copenhagen, in the plain rococo buildings of the old Frederik's Hospital, which was built in 1752—57 (the architects Eigtved and Thura) and reconstructed into a thoroughly modern museum in 1921—26 (Ivar Bentsen and Kaare Klint). Its collections, which consist of Danish and foreign art crafts, from mediaeval times down to the present day, include fine tapestries, carvings and ceramic. In connection with the museum there is a school of art crafts.

*Faaborg Museum* (Faaborg, Funen) contains mostly the works of Funen artists of the Zahrtman school, among them being Fritz Syberg, Peter Hansen, Johannes Larsen, Jens Birkholm, Poul Christiansen and the sculptor Kaj Nielsen. The present building was erected in 1913—15 by Prof. Carl Petersen.

*The Thorvaldsen Collection* at Nysø near Præstø includes several of the original works of Thorvaldsen and was opened in memory of his sojourn with the baronial Stampe family at Nysø.

## LIBRARIES AND ARCHIVES

*The Royal Library*, which was founded by King Frederik III, is Denmark's national library and, as regards foreign literature, the principal library in the country in the humanistic sciences. It comprises about 950,000 books, of which about 30,000 are manuscripts and more than 4,000 books printed prior to the year 1500, apart from large collections of music, maps and prints. The library is the largest in Scandinavia and one of the most important in Europe.

Among its oriental manuscripts the collection of Pali MSS. is one of the finest in the world; the Old Icelandic manuscripts include the famous Flatey Book, the unique Codex Regius of the early Edda and the Law Book ("Graagaasen") of the Icelandic Free State. It also has the care of the original observations of Tycho Brahe and relics of such more recent Danish writers and scientists as Johannes Ewald, Jens Baggesen, Adam Oehlenschläger, H. C. Andersen, Japetus Steenstrup, H. L. Martensen, Georg Brandes, J. P. Jacobsen, Harald Høffding, Vilhelm Thomsen, Karl Verner, J. L. Heiberg, Emil Christian Hansen, and many others, and of the composers C. E. F. Weyse, Niels W. Gade and J. P. E. Hartmann. Among the latest acquisitions is the unique collection of Jewish literature, books as well as manuscripts, belonging to the late Chief Rabbi, Professor David Simonsen.

*The University Library*, founded in 1482, burned down in 1728 and thereafter restored, removed in 1861 to its present premises, built by J. D. Herholdt. It has about 450,000 books, about 180,000 foreign theses and about 7,000 manuscripts. Danish literature is requisitioned of the publishers in pursuance of the Act of the 1st July, 1927, and of foreign literature the principal acquisitions are on medicine, mathematics and science. Of well-known collections of manuscripts there are the Old Persian MSS collected by R. Rask and N. L. Westergaard, among which are the oldest Zend-Avesta texts, as well as the papers of H. C. Ørsted and Søren Kierkegaard. The great Arna-Magnaean collection of Norse-Icelandic manuscripts is preserved in the building as an independent collection, as also the University archives.



*The State Library at Aarhus* (Jutland) was opened in 1902 and, with its 300,000 or more books, is the third largest library in Denmark and the only big library outside the Capital. It has special collections for Sleswig (the Regensburg Collection) and for missionary work (Vahl's Mission Library), as well as important collections of music. It also acts as university library for the Aarhus University.

In its own large building is the State Collection of Newspapers, with all Danish newspapers for the past hundred years and many of them still farther back.

*The Public Libraries of Denmark*, supported by the Government, are run in conformity with the Act of 5th March, 1920, amended 1st May, 1923, amended 31st March, 1931. This Act prescribes the fundamental regulations according to which the Government grants are divided, the conditions which the libraries must comply with, and Government supervision of their work.

At the present moment the Government supports about 85 public libraries, of which 77 are in the rural districts. The total number of books in these libraries closely approaches 2,250,000, the number of borrowings is about 9,366,799 annually. The annual grants from the municipalities total about 1,557,000 kroner, and those from the Government about 1,081,500 kroner.

All Government-supported libraries under the supervision of the Directorate of Libraries are given a discount of 15 per cent. by book publishers.

*The National Record Office*, which keeps the records concerning State history and administration, consists of a Central Record office in Copenhagen, three Provincial Record Offices (in Copenhagen, Odense and Viborg), as well as a Record Depôt at Aabenraa. The Central Record Office contains all the older material up to 1559 and all the archives of the central administration, which are only accessible to the public for the period after 1848 by permission of the particular Department. It also keeps the records of the Royal House (from the beginning of the nineteenth century the permission of H. M. the King is necessary for examination). The Provincial Record Offices

and the Record Depot contain the archives of the local authorities, including the church records, up to the end of the nineteenth century.

## SCIENTIFIC SOCIETIES AND FOUNDATIONS

*The Royal Danish Academy of Sciences and Letters* was formed in 1742. Its object is to promote the historical, physical, mathematical and philosophical sciences. It publishes Proceedings, Communications in 8vo, and "Skrifter" (publications) in 4to.

The President of the Academy is Professor Holger Pedersen, Ph.D., the secretary is Professor Martin Knudsen, Ph.D., the editor Professor Dines Andersen, Ph.D., and the treasurer Professor Jakob Nielsen, Ph.D. Its address is Dantes Plads 35, Copenhagen, V.

*The Carlsberg Foundation* was established by Captain J. C. Jacobsen in 1876. Originally it consisted of a capital invested in the Gamle Carlsberg Brewery, but at Jacobsen's death this passed to the Foundation. His son Carl Jacobsen presented the New Carlsberg Brewery to the Foundation in 1902, but the revenues from it were to be placed to a new fund, the Ny Carlsberg Foundation for the Promotion of Art.

The capital of the Carlsberg Foundation may be estimated at about 50 million kroner. Its income is divided between: A) the Carlsberg Laboratory of Chemistry and Physiology, B) research within the natural sciences, mathematics, philology, history and philosophy, and C) the Museum of National History at Frederiksborg Castle. In 1935—36 the sums applied to A were about 225,000 kroner, to B about 1,305,000 kroner and to C about 205,000 kroner.

Section B includes the Carlsberg Foundation Biological Institute, erected in 1931—32 at the expense of the Foundation, the State having presented the site. The Rockefeller Foundation made a donation of 1 million kroner, the interest on which is to be used running the Institute; expenditure beyond that is defrayed by Section B.

The Foundation is managed by a Board of five, elected by the Royal Danish Academy of Science and Letters.

Address: Dantes Plads 35, Copenhagen V.

*The Rask Ørsted Foundation* was founded by the Danish Government by the Act of the 4th October, 1919, its object being to support Danish science in its contributions to international research. The Foundation endeavours to promote its objects by the following means:—

a) In the first instance by supporting scientific work done by international co-operation and directed by Danes or in which Danes take part, and by assisting Danish scientific institutions and individual scientists in maintaining the links that connect Danish science with international scientific organizations.

b) By assisting in the convening of international scientific meetings, more especially such as are held in Denmark; by arranging for foreign scientists to teach in Denmark, and by giving grants to foreigners desirous of studying in Denmark and to Danes desirous of studying abroad, more especially when engaged upon work of an international character.

c) By assisting Danish scientists to get their works published in a world language.

Address: Frederiksholms Kanal 21, Copenhagen K.

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## ECONOMIC AND FINANCIAL CONDITIONS IN 1936

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Economic conditions in Denmark in 1936 were anything but uniform. The output of both agriculture and industry increased, it is true, and on the whole it was possible to dispose of the commodities at better prices, the natural consequence being a marked improvement in the employment of industrial workers. On the other hand, the smaller crops which characterized the harvest of 1936 compared with those of recent years were bound to mean difficulty to the farmers in the way of supplies of raw materials. In addition, this shortage, together with the rise of prices on the world markets for both cereals and other foreign raw materials necessary to Danish production, could not but result in heavy demands for foreign currency and consequently increased pressure on the balance of payments.

The outcome was that the deficit on the year's balance of trade increased from 63 million kroner in 1935 to 104 millions in 1936, because, as the following figures show, the very considerable rise in the value of the exports was more than outweighed by the increased imports.

	1936 Mill. kr.	1935 Mill. kr.	1934 Mill. kr.
Imports.....	1,484	1,330	1,354
Exports.....	1,327	1,213	1,176
Re-exports .....	53	54	59
Import surplus .....	104	63	119

Though the increased imports of cereals and feeding-stuffs necessitated by the poor crops in 1936 had as yet had little effect on the import quantities for 1936, the prices which had to be paid for them averaged 10 to 15 per cent. above those

of the year before. For industrial raw materials the rise of prices may have been less pronounced, but the increase in quantities was much greater, i. a. for replenishing the stocks which had been reduced earlier. What is more, however, the imports of semi-manufactures and finished goods were higher than in 1935, indeed relatively more so than the increase of raw materials. The figures below show the distribution of the imports in these main groups:

<i>Imports.</i>	1936 Mill. kr.	1935 Mill. kr.
Raw materials.....	455	423
Less manufactured goods.....	543	472
More manufactured goods .....	486	435
Total...	1,484	1,330

Regarding the exports, the following table illustrates the differences in the more important agricultural products:—

<i>Exports of</i>	1936		1935	
	Quantity Mill. kg.	Value 1000 kr.	Quantity Mill. kg.	Value 1000 kr.
Bacon .....	174.2	345,517	197.0	377,087
Butter.....	146.2	319,031	138.4	278,947
Cheese.....	9.5	14,235	6.7	9,199
Beef and veal .....	5.3	4,124	8.6	6,057
	(head)		(head)	
Cattle and calves .....	166,293	45,033	96,797	21,424
	(100 scores)		(100 scores)	
Eggs.....	700,879	111,884	586,125	88,522
Total...	—	839,824	—	781,236

Disregarding the continued decline of the exports of bacon caused by the British restrictions on that commodity, the table shows progress, and, as already stated, prices on the whole were also rather higher than in the year before. Exports of industrial products, too, altogether were somewhat higher in value than in 1935.

Whereas from 1935 to 1936 the rise of prices was almost the same for import as for export commodities, in 1936 there was a great difference, import commodities rising heavily

whereas the movement for export commodities was downwards if anything. The table below makes this clear:—

### Wholesale Price Index Numbers.

1931 = 100

	January 1936	July 1936	December 1936	Whole Year 1936	Whole Year 1935
Raw materials & semi-manufactures.....	132	136	151	137	126
of which { Food.....	122	130	151	131	117
{ Other Goods .	140	140	151	141	134
Finished Products.....	123	123	129	125	121
of which { Food.....	130	129	135	132	127
{ Other Goods .	117	119	124	119	115
Import Goods .....	131	135	149	136	127
Export Goods .....	149	146	146	149	141
Goods marketed at Home	122	122	127	124	119
Index Number... ..	126	127	136	129	122

It will be seen that in January the index number for export commodities was much higher than that for import commodities; in December the position had altered to the detriment of export commodities. Combined with the poor harvest it was particularly these heterogeneous movements of the price level that made conditions in the latter half of the year so much less favourable than in the first half, and caused the aforesaid diversity in the year's economic physiognomy. The cost of living index rose slightly from 112 in January 1936 to 113 in January 1937 (1931 = 100).

The rise of the prices of subsidiary materials required by *agriculture*, one which characterized the latter half of 1936 and continued into 1937, was again to the disadvantage of the farmers; it may therefore be expected that agriculture's earned interest on capital, which for 1935/36 had got up to 4.9 per cent. of the booked value, will prove to have fallen again for 1936/37. This renewed increase of agriculture's difficulties has naturally affected the volume of the legislation which in recent years has been passed in order to help the farmers over the crisis, and the Government has again introduced a butter scheme which ensures producers a minimum price on the home market; measures have also been taken to help farmers labouring under disproportionately heavy burdens of debt.

As regards *industry*, production and employment as a whole were almost of the same character in 1936 as in 1935. Here again, however, the position taking the year as a whole is not the same as when considering developments from month to month. A widespread labour stoppage in March 1936 caused such an interruption in the normal work that it is difficult to see from the figures whether the subsequent increase has merely offset the decrease caused by the stoppage, or the ascending line in the output has been continued. For the year as a whole the production index number was 125 (1931 = 100), the same as for the year before, but in the course of the year it went up from 124 in December 1935 to 132 in December 1936. The figures for the first months of 1937 for both production and employment indicate that the industrial improvement is continuing. This is so much the more probable, as house building — one of the most important of the key industries — after some decline at the beginning of 1936 increased again in the latter part of the year. As a result, the percentage of unemployment for 1936 was 19.3 as against 19.7 in 1935, while the number of employed members of the unemployment funds went up from 310,000 to 337,000.

For *shipping*, conditions in 1936 were also better than in 1935. Freights were so much higher that the average freight index number for the year was 128 (1931 = 100), as compared with 115 in 1935; the very heavy rise in freights had just begun at the close of 1936, and it continued into 1937. The total foreign freight earnings of the Danish merchant marine in 1936 have been calculated at 215 million kroner, against 201 millions for the previous year. The increase is less than would be expected from the higher freight index, even though the tonnage employed was greater; the explanation is probably that a large part of the fleet's foreign trade comprises regular routes, on which the freights have not gone up so much as in the tramp trade, and it is the latter's movements that are mostly reflected in the freight index.

The increased industrial activity and the heavier imports in the latter end of the year caused an expansion in the loans and advances of the banks, which rose by 80 million kroner from the end of 1935 to the end of 1936, as the following table shows:—

	Banks		Savings Banks
	Advances	Deposits	Deposits
	Mill. kr.	Mill. kr.	Mill. kr.
December 31, 1935.....	1,926	2,092	2,147.5
March 31, 1936.....	1,893	2,052	2,172.3
July 31, 1936.....	1,985	2,104	2,177.3
October 31, 1936.....	2,054	2,115	2,186.3
December 31, 1936.....	2,106	2,168	2,163.5

As the table shows, deposits in the banks rose at the same time by 77 million kroner and savings bank deposits by 16 millions. The relatively small increase of the savings-bank deposits is also a reflection of how difficult the situation is for agriculture, as almost the entire increase of the deposit capital was recorded by the savings banks in the towns. Having regard to the fact that the rise in the value of imports as already stated was to some extent due to higher prices on the imported commodities, whereas prices of export commodities, particularly refined agricultural produce, did not rise as much, there was inevitably a shortage of foreign currency; consequently, Denmark's National Bank endeavoured to check imports by continuing with its open market operations, whereby its holdings of bonds and shares dropped from 94 to 50 million kroner during the year; furthermore, the bank rate was raised on 19th November 1936 from  $3\frac{1}{2}$  to 4 per cent.

These measures, however, were without visible effect on credit expansion by the banks, which were bound to keep pace with the increased demands of trade and industry; nor were share prices on the Stock Exchange affected, whereas bond prices gave way, as the following summary shows:—

#### Index Numbers for Shares and Bonds.

(1st July 1914 = 100)

	January 1936	July 1936	December 1936
Banks .....	89.8	90.0	91.3
Shipping companies .....	98.2	110.1	135.2
Industrials .....	98.1	103.5	106.0
Others .....	126.6	130.0	131.9
Bonds .....	97.4	97.6	95.3

It will be seen that it was industrial and shipping shares especially that rose during the year, in keeping with the improvement in these two branches; to some extent the fall



of the level of bond prices is connected with the fact that the higher prices of shares have tempted bond holders or buyers to leave the bond market for the share market. And, of course, the National Bank's sales from its bond holdings, and the less favourable situation in agriculture, whose property encumbrances are mainly in the form of mortgage bonds, could not but depress bond prices. It must therefore be taken as expressing the high esteem in which bonds are held by the investing public that the decline has been so slight in spite of these circumstances.

With reference to the international value of the Danish krone, it has, in continuation of the policy embarked upon at the beginning of 1933, remained at the same level to sterling with a value of Kr. 22.40 to the pound. That this has been possible is partly due to the fact that during the year long foreign loans were raised by the public to an amount of 46 million kroner, partly on account of the increased foreign earnings of shipping. As a matter of fact, however, this total of new foreign loans is only 6 million kroner higher than the sum expended on reducing older foreign loans, so that in this respect the country's capital balance has not seriously deteriorated. All in all, the statement of Denmark's total balance of capital and payments for 1936 shows a surplus of about 20 million kroner on the balance of payments, and a corresponding decrease of the commercial debt abroad.

During 1936 there were new issues of shares on the home market to an amount of over 20 million kroner, and the net increase of credit association and second-mortgage association bonds amounting to about 225 million kroner. The Government raised a domestic loan of 65 millions and the City of Copenhagen one of 40 millions. These two loans, however, were solely for converting earlier loans which had matured.

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## LITERATURE FOR CONSULTATION

A selection of works to aid in making a closer study of Danish conditions<sup>1</sup>.

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### General Reference Books, etc.

- Kongelig Dansk Hof- og Statskalender (Royal Danish Court and State Calendar), published by G. Bardenfleth and F. V. Petersen (annually).
- Københavns Kommunalkalender (Copenhagen Municipal Calendar), published by the Copenhagen Statistical Office (annually).
- Krak's Blaa Bog (Krak's Blue Book, or "Who's Who"). Biographical handbook of about 5,000 Danish people of today (annually).
- Engelstoft, P. and S. Dahl: Dansk biografisk Leksikon. 1933. (Not yet completed).
- Krak's Vejviser. (Annually). Personal and trade directory for the whole country, with copious references to public and private institutions etc. Includes "Krak's Export Directory of Denmark", with commodity lists in English, French, German, Spanish and Danish. (Also obtainable separately.)

<sup>1</sup> Where no place of publication is shown, the book has appeared in Denmark. The publications of the Department of Statistics have a French translation of the column headings, and a summary of the text is often given in that language.

Besides the information contained in these works, details of Danish conditions are also obtainable from the literature issued by various international institutions, in which respect special reference may be made to the publications of the League of Nations, the International Labour Office in Geneva, the International Statistical Institute at The Hague and the International Institute of Agriculture in Rome.

- Kongeriget Danmarks Handels-Kalender med Postadresse Register (Annually). Trade directory for the whole country and index of postal addresses, with references as to public and private institutions, useful information for commercial people. List of commodities in Danish, English, French, Spanish and German.
- Statistisk Aarbog (Statistical Year Book), published by the Department of Statistics (annually).
- Statistisk Aarbog for København, Frederiksberg og Gjentofte Kommune (Statistical Year Book for Copenhagen, Frederiksberg and Gjentofte), published by the Copenhagen Statistical Office (annually).
- Beskrivelse af Kongeriget Danmark, by J. P. Trap. 4th Ed. Detailed geographical, economic and historical description of the various communes and large provinces. 1920—32. Eleven volumes.
- Danmark, Land og Folk. Historical, topographical, statistical handbook. Published by D. Bruun, 1913—24. Five vols.
- Hages Haandbog i Handelsvidenskab. 5th Ed. 1928. By K. Riis-Hansen (1314 pp.). Contains comprehensive details as to Danish conditions, especially the chapters on finances, commercial law, maritime law, civil law, commercial geography, statistics, trade institutions and organizations, commercial training, coinage, money market, insurance, customs and communications.
- Danmarks Erhvervs- og Samfundsliv, by J. Warming. A text book on Denmark's statistics. 1930. 721 pp. By means of text and figures provides a thorough description of economic, social and cultural Denmark, with complete references to the available statistics.
- Danske Samfundsproblemer i statistisk Belysning, by J. Warming. 1934. 336 pp. Abridged ed. of preceding book.
- Det Danske Samfund, edited by E. Marstrand and others. 4th Ed. 1934. 350 pp. An outline of economic and social conditions past and present.
- Report on economic and commercial conditions in Denmark. (Department of Overseas Trade). Lond. 1936. 78 pp.
- Bay, J. Christian: Denmark in English and American Literature. A bibliography edited for The Danish American Association. Chicago 1915. 96 pp.

*The following periodicals contain summaries, communications and statistics on Danish trade and industry:*

- Danish Foreign Office Journal, published by the Danish Foreign Office (monthly).
- Dänische Handelsrundschau, Revue Commerciale Danoise and Revista Comercial Danesa, published by the Foreign Office (quarterly).
- Statistiske Efterretninger, issued by the Department of Statistics. (About 50 issues annually.)
- Finanstidende (weekly).
- Børsen (daily).
- Økonomi og Politik (quarterly) issued by Institutet for Historie og Samfundsøkonomi.
- Denmark Abroad (monthly).
- The Economic Situation in Denmark. Monthly review issued by Den Danske Landmandsbank.
- Anglo-Danish Journal (quarterly), issued by the "Anglo-Danish Society", London.

#### **Land and People.**

- Danmarks Areal 1906 (The Area of Denmark). Published by the Department of Statistics.
- Befolkningsforholdene i Danmark i det 19. Aarhundrede (Denmark's Population in the 19th Cent.). Published by the Department of Statistics.
- Folkemængden 1935 i Kongeriget Danmark (The Population of Denmark 1935). Published by the Department of Statistics.
- Befolkningens Bevægelser 1935. Published by the Department of Statistics.
- Nybølle, H. C.: Nogle væsentlige Træk af Danmarks nuværende befolkningsmæssige Forhold. 1934. 26 pp.
- Summary of the Geology of Denmark, published by Victor Madsen (208 pp.), 1928.
- Andersen, S. A.: Det danske Landskabs Historie, The geology of Denmark popularly described. 1933. 276 pp.
- Rosenkrantz, A.: Kortfattet Oversigt over Danmarks Geologi (Brief Summary of the Geology of Denmark), 100 pp. with 4 plates. 1933.

- Ussing, N. V.: Dänemark in Handbuch der regionalen Geologie, herausg. von G. Steinmann, O. Wilckens. I. Bd. 2. Abt. Heidelberg 1910. 38 pp.
- Danmarks Klima (The Climate of Denmark). Published by the Danish Meteorological Institute. 276 pp. 40 charts.
- Denmark in Word and Picture. 1934. 200 pp. Richly illustrated.
- Bröchner, G.: A Wayfarer in Denmark. Lond. 1932. 204 pp.
- Desmond, S.: The Soul of Denmark. Lond. 1918. 277 pp.
- Gandolfi, G.: Dalla terra di Amleto. Impressioni di Danimarca. Sancremo 1929, 47 pp.
- Hielscher, K.: Dänemark, Schweden, Norwegen. Landschaft, Baukunst, Volksleben. Leipzig 1932.
- Holland, C.: Denmark, a Modern Guide to the Land and its People. Lond. 1927. 277 pp.
- Denmark: The Land of Sea Kings. Lond. 1928. 224 pp.
- Jolivet, M. A.: Le Danemark. 99 pp. In l'Europe moderne. Géographie politique, économique et touristique des états européens. Établie sous la dir. de A. Megglé. La Norvège, la Suède, le Danemark, la Lettonie, Dantzig. Paris 1931.
- Puaux, R.: Le Danemark. Grenoble 1935. (Collection "Les beaux pays".)
- Jones, H.: Modern Denmark: Its Social, Economic and Agricultural Life. London 1927. 83 pp.
- Lecarpentier, G.: Pays Scandinaves et Finlande. Paris 1922. 241 pp.
- Luzi, Renato: La Danimarca economica. Studio edito a cura del ministero dell economia nazionale. Rome 1923. 126 pp.
- Siemers, K.: Im Dänischen Sommer. Nordische Reisebilderbogen. Berlin, Itzehoe 1930. 194 pp.
- Williams, Ethel C.: Denmark and the Danes. London 1932. 242 pp.
- Guide books etc. published by the Danish Tourist Society and printed in the principal European languages.
- Griebens Reiseführer. Kopenhagen und die dänischen Seebäder. Berlin.
- Meyers Reiseführer. Kopenhagen und Umgebung. Insel Bornholm, Insel Moen. Leipzig 1932. 64 pp.
- Borup, George: Copenhagen and environs. A handbook for

tourists. With 2 maps, 228 pp. 1927. Also editions in French, German and Danish.

Meddelelser om Danmarks Antropologi (Communications on the Anthropology of Denmark), published by the Anthropological Committee, I—III, 1907—32. 402, 415, 404 pp. With English summaries.

### History.

Danmarks Riges Historie (The History of the Kingdom of Denmark) by Joh. Steenstrup etc. Vols. I—IV. 1897—1907. 3857 pp.

Ottosen, Johan: Vor Historie (Our History). Vols. I—III. 1900—04. 1196 pp.

Arup, E.: Danmarks Historie. I: up to 1282, 1925. 344 pp. II: 1282—1624, 1932. 718 pp.

Det danske Folks Historie (History of the Danish People), ed. by Aage Friis etc. I—VIII. 1926—29. 3082 pp.

Engelstoft, P. og F. W. Wendt: Haandbog i Danmarks politiske Historie fra Freden i Kiel til vore Dage (The political History of Denmark from 1814 to 1933) 1934. 484 pp.

Sidgwick, C. S.: The Story of Denmark. London 1890. 312 pp.

Weitemeyer, H.: Denmark. Its History and Topography, Language, Literature, Fine Arts, Social Life and Finance. 1891. 269 pp.

Sønderjyllands Historie (The History of South Jutland). Ed. by Vilh. la Cour, etc. (Not yet completed).

Mackeprang, M.: Nord-Schleswig von 1864—1911. Jena 1912. 256 pp.

Nielsen, A.: Dänische Wirtschaftsgeschichte. Jena 1933. 600 pp.

Danmark under den store Krig, en økonomisk Oversigt (Denmark during the World War, an economic survey) by Einar Cohn. 1928. 333 pp. The economic and social history of the World War, publ. by the Carnegie Endowment for International Peace. Scandinavian Series.

English translation: Sweden, Norway, Denmark and Iceland in the World War, Connecticut 1930.

- Pedersen, J.: Economic conditions in Denmark after 1922. 1931. 52 pp.
- Callø, P. A.: De økonomiske Forhold i Sønderjylland 1928 (Economic Conditions in South Jutland 1928). 20 pp.
- Olsen, A.: Den økonomiske Udvikling i Danmark 1925—34 (Economic Developments in Denmark 1925—34). 1934. 16 pp.

**Constitution, Legislature, Judiciary, Central  
Administration, etc.**

- Berlin, K.: Den danske Statsforfatningsret (Danish Constitutional Law). 1930—34. 1030 pp.
- Jensen, Adolph: Samfundskundskab (Social Affairs). 1928—29 (204 pp). A summary of State and Municipal constitutions, the divisions of the country, the various administrations, etc.
- Munch, P.: Lærebog i Samfundskundskab (Lessons in Social Order). 13th Ed. 1933. 190 pp. Treats particularly of political and legal organizations.
- Marstrand, E., etc.: Den danske Stat (The State of Denmark), 2nd Ed. 1933. 384 pp. Constitution and activities of State and Communes.
- Munch-Petersen, H.: Der Zivilprozess Dänemarks. Mannheim, Leipzig, Berlin 1932. 222 pp. (Das Zivilrecht der Kulturstaaten, Vol. 4).
- Den civile og kriminelle Retspleje 1916—25 (Civil and Criminal Jurisprudence). Publ. by The Department of Statistics.
- Reuter, Rudolf: Das Recht der Staatsangehörigkeit in Dänemark. Stuttgart 1929. 124 pp.
- Munch, P.: La politique du Danemark dans la Société des Nations. Genève 1931. 44 pp. (Publications de l'Inst. universitaire des hautes études internat. No. 2.)
- Det tyske Mindretal i de sønderjydske Landsdele (The German Minority in the South Jutland Provinces). A brief summary of the Danish legislation. Publ. on behalf of the Danish Foreign Office, 1924. 16 pp.
- Coussange, J. de: Le Slesvig, le droit des peuples et le traité de Versailles. Paris 1932. 284 pp. 2 maps.
- Hindenburg, T.: Juridisk Formularbog. 7th Ed. 1935. 832 pp. A handbook on a large number of practical questions in law.

- Aarborg for Rigsdagssamlingen (Parliamentary Year-Book), containing extracts of Bills and Acts of Parliament as well as data re members of Parliament.
- Oxholm, W.: Landkommunernes Styrelse (Local Government in Rural Areas). 1935. 617 pp.
- Danmarks administrative Inddeling (Administrative Division of Denmark), Nov. 1930. 291 pp. Publ. by the Department of Statistics.
- Kirkelig Haandbog (Ecclesiastical Handbook), published on behalf of the Danish Clerical Society. 1935. 464 pp. A summary of the administration of the Danish Church, the clerical offices and officials, the Danish Church abroad, report on Church work, societies, statistics, etc.

#### Education.

- Børneskolen (The Infants' School) 1927—31. Published by the Department of Statistics.
- Folkehøjskoler og Landbrugsskoler (Folk High Schools and Agricultural Schools) 19<sup>26</sup>/<sub>27</sub>—19<sup>30</sup>/<sub>31</sub>. Published by the Department of Statistics.
- De værnepligtiges Skolekundskaber (Educational attainments of conscripts) 1914. Published by the Department of Statistics.
- Den danske Skole (The Danish School). 1935. 282 pp.
- Meddelelser angaaende de højere Almenskoler i Danmark (Communications regarding the higher common schools) (annually).
- Beretning om det københavnske Borger- og Almueskolevæsens Tilstand (Report on the condition of the Copenhagen middle and common schools) (annually).
- Aarborg for Københavns Universitet, Kommunitet og den polytekniske Lærestalt (Yearbook for Copenhagen University, the State College of Engineering etc.).
- Haandbog for Studenter (Handbook for Undergraduates). Publ. by the Students' Council (annually). Communications regarding the University and the other higher seats of learning, matters relating to studies, scholarships, academic societies and institutions, etc.



- Friis, F. T. B.: *University Life in Denmark*, Geneva 1926 (14 pp.). Reprinted from the "Student World".
- Boje, A. etc.: *Education in Denmark. The intellectual basis of a democratic commonwealth*. 1932. 292 pp.
- Campbell, O. D.: *The Danish Folk School*. New York 1928. 359 pp.
- Ottosen, K.: *Vor Folkeskoles Oprindelse og Udvikling (Origin and Development of our Folk School)*. 6th Ed. 1931. 192 pp.
- The Danish People's High School. Published by "The Association of People's High Schools and Agricultural Schools" 1918. 170 pp. (Also German and French editions.)
- Begtrup, H. etc.: *The Folk High Schools of Denmark and the Development of a Farming Community*. 2nd Ed. London 1929 (176 pp.).
- Hollmann, A. H.: *Die Volkshochschule*. Berlin 1919. 143 pp.
- Quelques traits de l'hygiène scolaire en Danemark*, par Schlambusch. Publ. by La Ligue pour le development de l'hygiène scolaire en Danemark, 1923. 27 pp.

#### Public Finances.

- Bjarne, H.: *Om Finansforvaltningen i Staten (State Finance Administration)*. 1934. 312 pp.
- Olsen, Chr.: *Der Staatshaushalt und das Finanzsystem der skandinavischen Länder. A. Dänemark (16 pp.)*. In *Handbuch der Finanzwissenschaft*, publ. by W. Gerloff and F. Meisel. III. Vol. Tübingen 1928—29.
- Toftegaard, J.: *Vore Skatter (Our Taxes)*. 2nd Ed. 1932. 256 pp.
- A comprehensive outline of the various Danish State and Municipal taxes, their principles, administration and fiscal importance.
- Røgind, S.: *Alkoholbeskatningen i Nordens Lande (Alcohol taxation in Scandinavian Countries)* 1933. 228 pp.
- Danish State Loans*, publ. by the Ministry of Finance (annually). Contains full particulars of every State loan.
- City of Copenhagen Loans*, corresponds to the above.
- Kommune- og Havneregnskaber (Municipal and Port Accounts)* 19<sup>23</sup>/<sub>24</sub>—19<sup>29</sup>/<sub>30</sub>. Publ. by the Department of Statistics.
- Den kommunale Beskatning (Municipal taxation)*, Publ. by the Department of Statistics.

Indkomst- og Formueskat til Staten (State Income and Capital Taxes), annually, in two parts. Publ. by the Department of Statistics.

### **Agriculture.**

Beretning om Landbrugsraadets Virksomhed (Report on the Work of the Agricultural Council) (annually).

Landøkonomisk Aarbog (Agricultural Yearbook). Survey of the organization of Danish agriculture. Publ. annually by the Ministry of Agriculture.

Beretning fra Statens Planteavlssudvalg (Report from the State Committee on Plant Cultivation) (annually).

Aarsberetning fra Veterinærdirektoratet (Annual Report from the Directorate of Veterinary Services). On the health of domestic animals in Denmark.

Undersøgelser over Landbrugets Driftsforhold (Investigations into farm operation). Publ. by the Bureau of Agricultural Economy (annually). Statistical treatment of farm accounts.

Danmarks Mejeri-Statistik (Denmark's Dairy Statistics), publ. by the Committee on Dairy Statistics (annually).

Landbrugsforholdene i Danmark (Conditions in Agriculture in Denmark) 1850—1910. Publ. by the Department of Statistics.

Danmarks Jordbrug (Denmark's Agriculture) 1850—1905. Publ. by the Department of Statistics.

Arealets Benyttelse (Utilization of the Area) (annually). Publ. by the Department of Statistics.

Høstudbyttet (The Crops) (annually). Publ. by the Department of Statistics.

Kreaturtælling (Livestock Census) (annually). Publ. by the Department of Statistics.

Mejeribruget i Danmark (Dairy-farming in Denmark) 1914. Publ. by the Department of Statistics.

Landbrugets Andelsvirksomhed (Co-operation in Agriculture) 1923. Publ. by the Department of Statistics.

Landbrugsmaskinens Anvendelse (Use of Agricultural Machinery) 1923. Publ. by the Department of Statistics.

Ejendomssalg (Farm Sales) 1925—31. Published by the Department of Statistics.

- All about Danish Agricultural Produce. 1929. 22 pp. Publ. by the Ministry of Agriculture.
- The Agricultural Export of Denmark. Publ. by The Agricultural Council of Denmark. (Quarterly.) Also German and French editions.
- Denmark, Agriculture. The Agricultural Council. 1935. 377 pp. (Also French and Danish ed.).
- League of Nations: Agriculture, the co-operative movement and rural education in Denmark. 1929. 30 pp.
- Arnskov, L. Th.: Small Holdings in Denmark. 1924 24 pp. Reprinted from The Danish Foreign Office Journal.
- Axelsen Drejer, A. etc.: Den danske Andelsbevægelse (Danish Cooperative Movement). 1934. 320 pp.
- Bakhoven, H. G. A., Leignes en W. de Jong: De varkens-fokkerij en -mesterij in Denemarken. 's-Gravenh. 1929. 24 pp. 2 plates. (Department van binnenlandsche zaken en landbouw. Directie van den landbouw.)
- Brinkmann, Th.: Die dänische Landwirtschaft. Die Entwicklung ihrer Produktion seit dem Auftreten der internationalen Konkurrenz und ihre Anpassung an den Weltmarkt vermittelt genossenschaftlicher Organisation. Jena 1908. 197 pp.
- Bøggild, B.: Mælkebruget i Danmark (Dairying in Denmark), 1916. 640 pp. A technical description of dairying in Denmark.
- Christensen, C. L.: Agricultural Cooperation in Denmark. Washington 1924. 88 pp.
- Coche, Pierre: La Production Laitière en Danemark. Paris 1928. 172 pp.
- Dannfelt, H. Juhlin: Landbruget i Norden (Agriculture in Scandinavia) 1875—1925. Gothenburg 1928. 624 pp.
- Faber, H.: Cooperation in Danish Agriculture. (An English adaptation of "Andelsbevægelsen i Danmark", by H. Hertel). Foreword by Sir E. J. Russel. New ed. 1931. 210 pp.
- Agricultural production in Denmark. London. 1924. 75 pp. Reprinted from The Journal of The Royal Statistical Society.
- Forage Crops in Denmark. London 1920. 100 pp. Describing the leading rôle of Danish agriculture in growing beet and determining their fodder value, seed analyses, control over the seed trade, etc.

- Gebhard: Småbruget i Skandinavien (Small farms in Scandinavia). Helsingfors 1923. 203 pp.
- Grote-Hahn, K.: Die Preisentwicklung in der dänischen Landwirtschaft und ihre Wirkungen auf Bodenkultur und Viehhaltung. Greifswald 1930. 51 pp.
- Haggard, H. Rider: Rural Denmark and its Lessons. London 1911. 355 pp.
- Hansen, J. J.: Større danske Landbrug (Large-sized Danish Farms), I—VII. 1930—35. 5249 pp.
- Hansen, K.: Det danske Landbrugs Historie (History of Danish Agriculture). (Not yet completed.)
- Haugaard, J. K.: Foreningen af de jydsk Landboforeninger (The Society of Jutish Agricultural Societies) 1872—1922. 1926. 903 pp. Full description of the development of agriculture in Jutland and of the activities of the Jutish agricultural societies.
- Hertel, H.: Andelsbevægelsen i Danmark (Cooperative Movement in Denmark). 1917. 570 pp. Publ. by the Cooperative Committee.
- A Short Survey of Agriculture in Denmark. Published by the Royal Danish Agricultural Society 1929. 79 pp. Also French, German and Danish editions.
- Howe, F. C.: Denmark. A Co-operative Commonwealth. London 1922. 203 pp.
- Jacobsen, A. P.: Die Landwirtschaft in Dänemark. Berlin 1926. 59 pp.
- Jeppesen, P.: Husmandsbevægelsens Historie gennem 25 Aar (Twentyfive Years of the History of the Small Holder Movement). 1927. 368 pp.
- Kristensen, K. J., etc.: Det danske Landbrug. 1933. 272 pp.
- Larsen, O. H.: Landbrugets Historie og Statistik. 1929. 324 pp.
- Laur, E.: L'agriculture danoise. Brougg 1931. 30 pp. Also German edition.
- Marchi, E. de: Agricoltura e cooperazione in Danimarca. Rome 1928.
- Pedersen, Jørgen: Husmandsbruget (Small Holdings). 1928. 206 pp. An appraisal of the economic and social importance of Danish small-holding legislation.
- Smith-Gordon, L. and C. O'Brien: Co-operation in Denmark. International cooperative series. No. 4. Manchester 1919. 74 pp.

### Forestry and Horticulture.

- Skovbruget (Forestry) 1923. Publ. by the Department of Statistics.
- Sabro, A. S.: Forstwirtschaft in Dänemark zur Orientierung für Ausländer. 1926. 68 pp.
- Perrin, H.: Le Danemark forestier. Nancy, Paris, Strassbourg 1923. 107 pp. Plates. (Of: Annales de l'École nationale des Eaux et Forêts. 1923.)
- Hauch, L. A.: Danmarks Trævækst (The Timber Growth of Denmark). 1913—23. 631 pp.
- Bruun, A. and Lange, A.: Danmarks Havebrug og Gartneri til Aaret 1919 (Denmark's Horticulture and Gardening up to the year 1919). 1920. 767 pp.
- Aarvog for Gartneri (Yearbook of Gardening). Publ. by the General Danish Society of Gardeners.

### Fisheries.

- Fiskeriberetning (Report of the Fisheries), publ. annually by the Director of Fisheries. Report on the people employed, material and yield, measures for improving the fisheries, control and inspection, scientific research, statistics for the various waters.
- Beretning fra Den danske biologiske Station (annual report). Meddelelser fra Kommissionen for Danmarks Fiskeri og Havundersøgelser (Reports of the Commission on Denmark's Fishery and Oceanographic Research).
- Aarvog for den danske Fiskerflaade (Yearbook of the Danish Fishing Fleet), publ. by the Directorate of Fisheries (annually). Contains legislation, regulations etc. of interest to the fisheries, register of fishing vessels, extracts of statistics.
- Bulletin Statistique des pêches maritimes des pays du nord et de l'ouest de l'Europe, publié par le Conseil permanent international pour l'exploration de la mer (annually).
- Demangeon, A.: Recherches sur les pêcheries Danoises. Annales de géographie. XXXII. 25. July 1923. Paris 1923.
- Mortensen, F. V. and A. C. Strubberg: Die dänischen Seefischerei. Stuttgart 1931. 108 pp. (Handbuch der Seefischerei Nordeuropas. Herausg. v. H. Lübbert u. E. Ehrenbaum. Bd. 8, H. 2.)

Mortensen, F. V. and A. C. Strubberg: Dansk Saltvandsfiskeri (Danish Saltwater Fisheries). 1935. 211 pp.

### **Handicrafts and Industry.**

- Dansk Industrieretning (Danish Industrial Report), publ. by the Industrial Society of Copenhagen (annually).  
 Erhvervstællingen (Industrial Census) 1925. Publ. by the Department of Statistics.  
 Produktionsstatistik (Production statistics), annually. Publ. by the Department of Statistics.  
 Vedso, Fr.: Danmarks Industri (The Industries of Denmark), 1933. 240 pp.  
 Hansen, Max Kjær: Die Entwicklung der Industrie in Dänemark. Borna, Leipzig 1925. 107 pp.  
 Heineke, S.: Die Finanzierung der dänischen Industrie. Cologne 1929. 154 pp.  
 Iversen, Mads: Dansk Haandværk i Tal og Tekst (Danish Handicrafts in Figure and Text). 1931. 62 pp.  
 Samsøe, Jens: Die Industrialisierung Dänemarks. Jena 1928. 237 pp. (Probleme der Weltwirtschaft 44, herausg. von Bernhard Harms.)

### **Trade.**

- Handelsberetning (Trade Report), publ. by the Committee of the Merchants' Guild (annually). Report on trade conditions in the various branches, and on shipping, marine and fire insurance.  
 Verdensmarkedet og Danmark (The World's Market and Denmark). First and provisional part of the above. Publ. near the end of the year and contains an outline of events and movements in Danish trade and industrial life during the past year. A summary in English is:  
 General Review of the World Markets and Denmark, by Jens Vestberg (annually).  
 Danmarks Vare-Ind- og Udførsel (Denmark's Imports and Exports) (annually). Publ. by the Department of Statistics.  
 Handelsstatistiske Meddelelser (Trade Statistical Reports) (monthly). Publ. by the Department of Statistics.  
 Interskandinavisk Handelsstatistik (Inter-Scandinavian Trade

- Statistics) 1920—26. Publ. by the Department of Statistics.
- Schovelin, J.: *Fra den danske Handels Empire, 1899—1900.* 590 pp. *Fra Kongegunst til Selvstyre, 1917.* 595 pp. *Fra den danske Handels Renaissance, 1924.* 851 pp. *Tidens Hjul og Tietgen, 1857—97.* 1929. 680 pp. All describe the development of Danish trade from the middle of the 18th century till the close of the 19th century.
- Gerlach, K. A.: *Dänemarks Stellung in der Weltwirtschaft unter besonderer Berücksichtigung der Handelsbeziehungen zu Deutschland, England und Skandinavien.* Jena 1911, 380 pp. (Probleme der Weltwirtschaft 3, herausg. von Bernhard Harms).
- Lando, Z. D.: *Die Organisation des dänischen Butter-Grosshandels.* Göttingen 1923.
- Kronman, V.: *Denmark worth studying. A small chain of facts and figures regarding Denmark.* 1932. 20 pp.
- Der deutsch-dänische Handel.* Berlin 1932. 32 pp.
- Brugsforenings Statistik (Statistics of Cooperative Societies)* (annually). Publ. by the Joint Society of Denmark's Cooperative Societies.
- Thalbitzer, Carl: *Hirschsprungs Handelshaandbog (Trade Manual).* 3rd Ed. 1934. 670 pp. Supplement 1935, 8 pp. 1936, 10 pp.

#### **Financial Institutions.**

- Indberetning om de danske Bankers Virksomhed, publ. annually* by the Government Inspector of Banks. Report on the accounts and balance sheets of every bank, plus statistics.
- Nielsen, Axel: *Bankpolitik (Bank Policy).* I. 1923. 417 pp. Describes the development of banks, including those of Denmark.
- Lando, D.: *Bank og Børs (Bank and Exchange).* 1928. 175 pp. *Bank Aarbogen (The Bank Yearbook).* Ed. by A. C. Kaarsen. (Annually).
- Beretning om Sparekasserne i Danmark (Report on the Savings Banks of Denmark)* (annually). Publ. by the Government Inspector of Savings Banks.
- Sparekasserne (The Savings Banks)* 19<sup>13</sup>/<sub>14</sub>—19<sup>27</sup>/<sub>28</sub>. Publ. by The Department of Statistics.

- Bisgaard, H. L. and J. Schiødt: Danmarks Sparekasser (The Savings Banks of Denmark). 1910. 223 pp. Their development in 100 years.
- Assurandør-Societetets Aarsberetning (Annual Report of the Underwriters' Society), publ. annually by the committee.
- Dansk Forsikringsaarbog (Danish Insurance Yearbook), publ. by A. Reckendorff. Contains the annual accounts of insurance companies, reports and statistics on insurance in Denmark and information on insurance organizations, etc.
- Thorsen, Chr.: Forsikringslæren i Hovedtræk (The Science of Insurance Outlined). 1937. 344 pp. In addition to its main subject contains comprehensive reports on the development of Danish insurance in its various branches.
- Jensen, Thorkel: Det danske Hypotekmarked (The Danish Mortgage Market). Communications from the Study Club in Commercial Practice at the Commercial High School in Copenhagen. Vol. I. 1926—30, 19 pp.
- Aktieselskaber (Joint Stock Companies) 1926—32, publ. by the Department of Statistics.
- Registreringstidende for Aktieselskaber (Gazette of Companies) publ. by the Ministry of Commerce (monthly). Notices of new companies, their capital, management etc. and amendments to the register.
- Green's Danske Fonds og Aktier (Green's Danish Stocks and Shares), by H. Stein. Vol. I. 1936/37. 920 pp. Vol. II. 1936/37. 750 pp. Full particulars of companies, some with extracts of reports, as well as particulars of Government, municipal, credit society and mortgage society loans, etc.
- Borstabeller (Exchange Tables), publ. by the newspaper "Børsen". The daily share and exchange quotations on the Copenhagen Exchange and bond prices on the 1st and 15th of each month; dividends, share and bond issues.
- Palsby's Haandbog 1937. Handbook of companies whose shares are quoted on Copenhagen Exchange. 206 pp.

#### **Shipping and other Communications.**

- Skibsfartsberetning (Shipping Report), publ. annually by the Danish Steamship Owners' Association.



- Danmarks Skibsliste (Official List of Danish Ships), publ. annually by the Ministry of Commerce.
- Danmarks Handelsflaade og Skibsfart (Denmark's Mercantile Marine and Shipping), published annually, by the Department of Statistics.
- Liisberg, Bering: Danmarks Søfart og Søhandel fra de ældste Tider til vore Dage (Denmark's Shipping and Maritime Trade from earliest Times to Present Day). 1919. 782 pp.
- Hübsch, M.: Dänische Trampdampschiffahrt. Heidelberg 1924. 76 pp.
- Statistiske Oversigter over Skibsfart og Vareomsætning paa København (Statistical Summaries of Shipping and Trade with Copenhagen). Publ. by Port of Copenhagen Authority. 7th Ed. 1934. 44 pp.
- Lorenz, G.: København Havns Udvikling (Development of the Port of Copenhagen). 1934. 245 pp.
- Reumert, J.: The Commercial-Geographic Importance of the Situation of Copenhagen. 1929. 127 pp. (Supplement to *Geografisk Tidsskrift* 1929).
- Forenede danske Motorejeres Haandbog (Handbook of United Danish Motorists).
- La Poste Danoise 1624—1924. Une courte description historique. Publié par le directeur général des postes du Danemark. 1924. 136 pp.
- Dansk Søfartstidende (Weekly).
- Scandinavian Shipping Gazette (Weekly).

### Social Conditions.

- Socialt Tidsskrift* (monthly). Section A.: Complete articles and brief reports on social questions; Sec. B.: new social laws, orders, circulars, etc. and important decisions by authorities and courts; Sec. C.: annual reports etc. from social institutions; Sec. D.: awards of the Permanent Arbitration Court.
- Socialreformen (The Social Reform), with notes, by the Ministry for Social Affairs. 1933. 366 pp.
- Steincke, K. K.: The Danish social reform measures. *International Labour Review*. May 1935, p. 620—48.

- Arbejdsløn i Industrien (Industrial wages) 1926—31. Publ. by the Department of Statistics.
- Privatfunktionærerne (Employees in private establishments) 1923. Publ. by the Department of Statistics.
- Arbejdsløshed (Unemployment) 1925—30. Publ. by the Department of Statistics.
- Arbejdsløshedstællingen (Unemployment Census) 30. Juni 1934. Published by the Department of Statistics.
- Strejker og Lockouts (Strikes and lock-outs) 1926—30. Publ. by the Department of Statistics.
- Bolig- og Huslejeforhold (Dwelling houses and rents). Publ. by the Department of Statistics.
- Alkoholstatistik 1931—32. Published by the Department of Statistics.
- Sundhedsstyrelsens Aarsberetning. Annual Report of the National Health Service.
- Vater, Aage: Arbejdsløshedslovgivningen i Danmark gennem 25 Aar (Unemployment legislation in Denmark 1907—32). 1932. 208 pp.
- Marstrand, E.: Arbejderorganisation og Arbejderkaar i Danmark fra 1848 til Nutiden (Labour's organization and conditions from 1848 till today). 1934. 256 pp.
- Boje, A., Alfred Th. Jørgensen, and J. C. Mogensen: Private Philanthropical Work in Denmark. 1932. 32 pp.
- L'Organisation sanitaire du Danemark, Genève 1924, Suppl. 1927. Publié par la Société des Nations.
- Westergaard, H.: Economic development in Denmark before and during the world war. Oxford 1922. 106 pp. Deals especially with social developments in Denmark.

### **Greenland.**

- Beretninger og Kundgørelser vedrørende Styrelsen af Grønland (Reports and notices regarding the administration of Greenland), 5 or 6 issues annually.
- Greenland. Published by the Commission for the Direction of the Geological and Geographical Investigations in Greenland. Vol. I. The discovery, exploration and nature of the country. 1928. 584 pp. Vol. II. The past and present population of Greenland. 1928. 428 pp. Vol. III. The

- colonization of Greenland and its history up to 1929. 1929. 468 pp.
- Grønland i Tohundredaaret for Hans Egedes Landing (Greenland at the Bicentenary of the Landing of Hans Egede). Ed. by G. C. Amdrup, etc. Vols. I—II. 1362 pp. 1921. (Meddelelser om Grønland, Vols. 60 and 61).
- Folketællingen i Grønland (The census in Greenland) 1930. Publ. by the Department of Statistics.
- Krabbe, Thomas Neergaard: Grønland, dets Natur, Beboere og Historie (Greenland, its nature, inhabitants and history). 1929. 498 pp. 170 tables, 50 portraits, 1 map.
- Greenland, its Nature, Inhabitants and History. London 1930. 145 pp. (translation of the above).
- Hutchison, Isobel W.: On Greenland's Closed Shore. London 1930. 395 pp.
- Lindsay, M.: Those Greenland days. With illustrations and maps. Edinb. and Lond. 1932.
- Owen, Ruth Bryan: Leaves from a Greenland diary. New York 1935.
- Petersen, Sophie: Grønland i Hverdag og Fest (Greenland on week-days and better-days). 1928. 190 pp.
- Seward, A. C.: A Summer in Greenland. London 1922. 113 pp.
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II.



# LEADING DANISH INSTITUTES OF NATURAL SCIENCE

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The important steps so frequently made in the natural sciences and so characteristic a feature of present-day culture, would be inconceivable without a live international scientific collaboration. Every investigator can and must build upon the results of earlier and contemporary colleagues; he communicates his own results at once in scientific periodicals as well as direct to his personal associates, just as he readily initiates others in his particular technique. In this collaboration, however, which signifies the bright side of a period when so many nations in other respects are content with — or forced to adopt — a policy of self-sufficiency, the great nations have many advantages over the smaller ones.

The great nations can equip their leading science institutions better in regard to personnel and the pecuniary means of carrying on, and they have greater chances of at all times having at their call the right brains for the highest posts in every branch. Nor must one underrate the importance of their great industries to the natural sciences, both indirectly through the support they give to university and high-school laboratories, and directly through the research work carried on in their own sumptuously equipped laboratories. When technics concentrate their enormous resources on the solving of a problem that holds a promise of practical application, no university laboratory can compete, and scarcely any problem can withstand the attack. Nevertheless, most frequently the vital step forward in matters of principle, opening up entirely new fields, is made in the more modest high-school laboratories which, without aiming direct at practical utilization, work on questions in which the leading investigators are interested and

hope to put to some use. In such cases, where it is so emphatically a question of who the investigator is, the smaller nations naturally have possibilities of successfully contributing their share. In that respect no Dane could help recalling his countryman H. C. Ørsted's discovery of the magnetic effect of the electric current in 1820. That discovery, together with the discovery of the British physicist Faraday in 1831 that an electric current can be produced by induction, forms the foundation on which electro-technics rest today. Neither of these men thought of practical applications for their results, scarcely dreamt no doubt that they could be of practical importance; they were university teachers, urged by a desire to find unity in nature, a connection between its various forces; but their discoveries revolutionized our daily life.

In the following the endeavour will be to show that in many fields within the natural sciences even today the small Danish nation contains capacities whose work has won fame all over the world; and that, thanks to the generosity of both Government and private people, of foundations at home and abroad, it has been possible to set up such a framework for the labours of these investigators that their abilities can unfold without impediment, and that they are able to offer the best of working conditions to assistants and pupils from both Denmark and abroad. It may be that on this point the small nations have the advantage and consequently a special mission. They cannot be self-sufficient; they must always keep their eyes directed beyond the borders and try to absorb and work into their own culture the most valuable elements of the scientific and artistic production of more important countries; for this reason they are qualified to gather pupils from all civilized communities on neutral ground around their outstanding men, and thereby make their contribution towards the growth of the international understanding for which we must all work.

An outline of the leading Danish natural science institutions today must begin with Professor Niels Bohr's institute, the *University Institute of Theoretical Physics*.

Niels Bohr, who is now 51 years old, must be named, together with the *Altmeister* of German theoretical physics, Max Planck of Berlin, and Lord Rutherford of Nelson at Cambridge, as the creator of modern physics. In the first years of our century



physics was in a state of chaos. On many points classical physics had got so far with the explanation of, for example, electrical and optical phenomena that it could not be abandoned; but it was incompatible with Rutherford's ideas of the structure of the atom, which for their part were based on incontrovertible facts. The first breach with classical physics had in fact already been made by Planck with his quantum theory; for, in order to arrive at conformity with experiments, he had been compelled to assume that the absorption and emission of radiation by atoms always proceeded in portions (quanta) of a definite size; no doubt he himself endeavoured to reconcile this view with classical physics; but it became clear that reconciliation was impossible, especially after Einstein had occupied himself with the theory. In this confusion Bohr created order and clarity by his famous postulates as to the correlation between radiation and matter; certainly, they signified a decisive breach with the customary ideas, but from the first and ever since they have vindicated their correctness and fruitfulness through all the experiments made to test the consequences of the theory; on the other hand they put classical physics in their right place, explained how and why they could attain to correct results, and clearly indicated their limitations. Bohr, who in the course of his studies was a year in England, after becoming known to the scientific world, was a lecturer at Cambridge during the first two years of the Great War, became professor of theoretical physics on his return home, and at once began to work for the founding of an institute for theoretical physics of unusual structure. Normally such an institute would be expected to contain only a library and auditorium, work rooms and discussion rooms for the scientifically working theorists; Bohr realised, however, that at his institute there must also be facilities for experimenting within the fields on which the theory was to be tested, or from which knowledge was to be gained in order to make further progress. Despite the difficulties encountered during the war and after, the Government was prevailed upon to grant funds for a small university institute, after a circle of Professor Bohr's friends had presented the sum of 80,000 kr. for the purchase of a site; the institute was taken into use in 1921. Soon afterwards, in 1923, after Bohr had been awarded

the Nobel Prize, he received a gift of 40,000 dollars from a section of the Rockefeller Foundation for the purpose of extending the institute; the City of Copenhagen presented the site for it, and the Government assumed the additional expense of running the institute. At the present time it is again being enlarged with a high-tension laboratory through the joint assistance of the Rockefeller Foundation and the Carlsberg



Fig. 1. University Institute of Theoretical Physics. On the extreme left a glimpse of the Institute of Mathematics. Then the main building, in front of which is the former professor residence, now also a part of the Institute. In the right background is the new high-tension building, which extends as far underground as it is high above ground.

Foundation, and two years ago a University institute of mathematics was established in an additional building. This close co-operation between the two sciences, which both stand in need of each other, is a new characteristic feature of Professor Bohr's institute. The Institute of Mathematics, which was erected by means of a gift from the Carlsberg Foundation to the University on the occasion of its 450th anniversary in 1929, is under the leadership of Professor Bohr's brother, the well-known mathematician Professor Harald Bohr, while various other mathematicians of high repute frequent it, such as Professor Hjelmslev and Professor Nørlund. The genesis of the institute as a whole makes it natural that, as the picture shows, the exterior must give an impression of irregularity; its interior, however, suits its purpose, planned as it has been

each time after careful consideration and accurate drawings by Bohr himself. The institute being a university institution, the normal working expenditure is defrayed by the Government, but the actual expanse of the work done in it would be impossible without a large annual grant from the Carls-

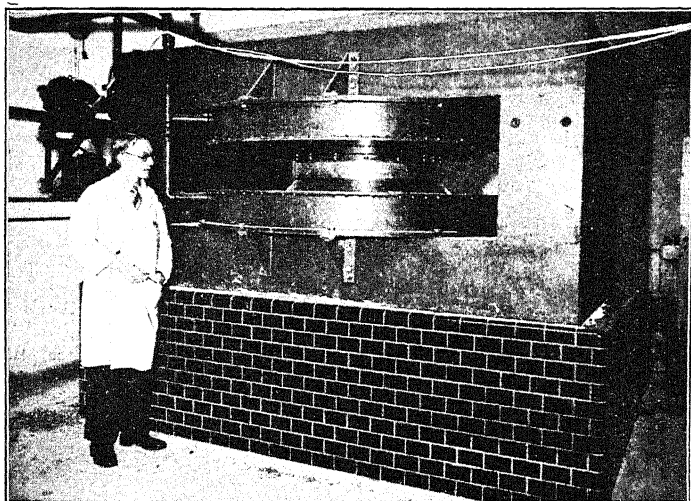


Fig. 2. The great magnet in the Institute of Theoretical Physics' new high-tension building.

berg Foundation which also, like the Rockefeller Foundation, has on various occasions advanced large sums for the purchase of special apparatus and the like.

The extension now in course of erection already contains the magnet shown on the illustration, one of the world's few really large magnets, designed, built, and presented to the institute by the well-known firm of electrical engineers Thomas B. Thrige of Odense. This magnet is to be employed for a cyclotron, in which it is possible artificially to obtain electric particles of a velocity otherwise obtainable only by the employment of many millions of volts. The cyclotron, the high-tension plant, and a large quantity of radium, the gift of Danish foundations and industrialists on Bohr's 50th birthday,

will enable the institute to work effectively in the latest promising field in physics, artificially produced radioactivity, and thereby make the institute still more attractive to young investigators at home and abroad.

Bohr's institute has worked hard, both theoretically and experimentally. The fruits of the first ten years have been recorded in 275 printed papers. So far the experimental work has mostly been confined to optics in the widest sense of the word (light and X-ray spectra) and radioactivity. Almost all the younger theoretical physicists who hold the lead throughout the world of atom research have studied at the institute, for periods both short and long, where they have received impulses of vital importance; they return to it continuously, particularly for the famous informal conferences which Professor Bohr has held, usually every year, for the discussion of the latest progress and the setting out of new tasks. In the year 1922 one of the still unknown elements was found at the institute, for Bohr had been able to predict its properties so accurately that one knew where to look for it. The discovery of that substance, which received the name of Hafnium after the Latin name for Copenhagen, Hafnia, provided the direct impulse for the discovery of the few elements that still remained to be found.

This outline has already made it clear what a debt of gratitude Danish natural science of modern times owes to the *Rockefeller Foundation*, and this will be further stressed in the following. It also shows, however, that a development like that of Professor Bohr's institute would scarcely have been possible had Denmark not had the *Carlsberg Foundation*. That unique institution was founded in 1876 by Captain J. C. Jacobsen, Ph. D., the owner of the Carlsberg Brewery, by means of a gift of a million kroner to a fund for the promotion of science; in the course of time he increased the sum to 2.2 millions, and at his death (1887) bequeathed his brewery to the fund. The Carlsberg Foundation is governed by five professors chosen by the Royal Danish Academy of Science from among its members; these five professors are thus also the governing board of the Brewery. Apart from supporting the museum of national history at Frederiksborg Castle, in which the founder took special interest, the annual surplus of the Foundation is

applied partly to carrying on the Carlsberg Laboratory (see below), and partly, and chiefly, in support of Danish pure science, natural and humanistic, whereas applied science is barred. Afterwards the Carlsberg Brewery was amalgamated with the Ny Carlsberg Brewery established by Dr. Jacobsen's son, Dr. Carl Jacobsen, the profits of which go to a fund which he started, the Ny Carlsberg Foundation, for the support of Danish art. The amalgamated brewery, under what would seem to be the very unique management of five professors, has undergone such a growth that it is now one of the largest in the world and the one employing the largest number of people. In consequence, the sum which every year becomes available for scientific purposes has increased very greatly. In the first fifty years a total of about 9 million kroner was paid out, but in the last financial year about 1.2 millions were distributed in addition to 250,000 kr. to the Carlsberg Laboratory; at the same time the Foundation has been consolidated by large reserves and it is now the richest fund in Scandinavia. Its methods of carrying out its task in the natural sciences may be instanced by the following examples: travelling assistance for the training of scientists — grants of apparatus and other appliances as well as technical assistance in research — the sending out of scientific expeditions — contributions towards the salaries of young and promising scientists, and relieving prominent older scientists of some of their obligatory duties in order to allow them more time for scientific work.

J. C. Jacobsen bequeathed his villa to the Academy of Science to use it as a house of honour for a Danish scientist. This residence, which was first awarded to the philosopher Harald Høffding, is now held by Niels Bohr. Drawn by Jacobsen himself, this handsome house is in classic style and several of its rooms are embellished with sculptures by Thorvaldsen. With its winter-garden, a large columnated hall and a very large park on hilly ground on the outskirts of the town, it provides a worthy framework around Professor Bohr's physical conferences, and doubtless through this has now found the very place in science that was in the mind of the donor.

In the year before the Carlsberg Foundation was established Jacobsen had opened the *Carlsberg Laboratory*, the management

and operation of which was assumed by the Foundation. Jacobsen indicated the objects of the Laboratory to be: "By means of independent undertakings to test the lessons already established by science, and to develop them by continued study into the most complete scientific basis possible for the operations of malting, brewing and fermentation". The Brewery of course has its own working laboratory, so that the Carls-

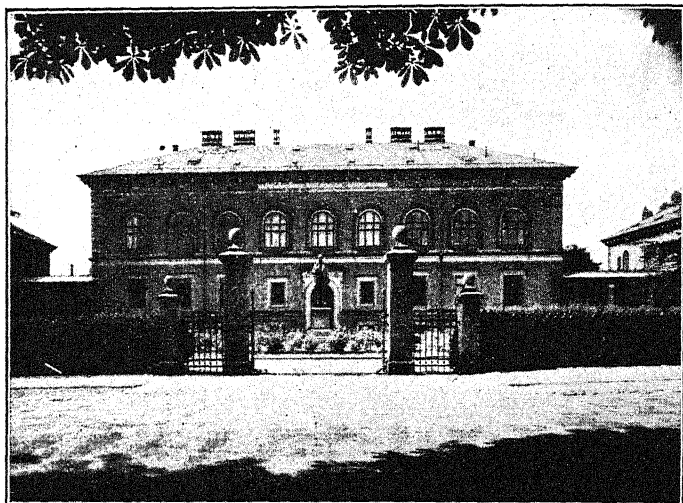


Fig. 3. The Carlsberg Laboratory.

berg Laboratory is a purely scientific research institution, and it was laid down that it was not to be associated with instruction, nor were analyses to be undertaken for outside persons. This laboratory, which obtained its present handsome building in 1897, consists of two independent departments, one for chemistry and one for plant physiology. In the sixty years they have existed both departments have been so directed that they have always been among the leading institutions in the two branches.

Until 1900 the chemistry department was in the charge of Kjeldahl, who for the nitrogen analyses that are so important to biological research created the method that is employed

daily in all chemistry laboratories all over the world; since then it has been under the leadership of Professor S. P. L. Sørensen, whose work on the chemistry of albumins and of the enzymes is at least as well known. The latter especially, a work which *inter alia* proved the importance of the degree of acidity to the effects of these vital substances, has formed the basis of innumerable other works which are also of great practical importance. Finally, his colorimetrical method for the determination of the acidity of liquids has been adopted in purely scientific and in practical laboratories everywhere. Numbers of Danish and foreign investigators have come to this laboratory for training or guidance.

The department of plant physiology was almost from the very beginning and till 1909 under the direction of Emil Chr. Hansen. The collaboration between that great research-worker and J. C. Jacobsen was destined to be of revolutionary importance to the technique of brewing, for Hansen showed that the capriciousness governing the beer production of former times was due to contamination of the yeast with "wild" yeasts, and he learned to pure-cultivate yeast so that a safe and uniform product was available; as the first in the world Jacobsen was bold enough to base his beer brewing on yeast produced according to this method (1883). Now it is employed everywhere and seems natural to everybody. Hansen's successor, Johs. Schmidt, who was head of the laboratory from 1910 to 1933, was responsible for important investigations on hops, but doubtless is still better known for his marine-biological work. As a young man he was an assistant in the work of international oceanic research and, as a result of his finding of the first Atlantic eel-larvae when on an expedition, aroused interest in the elucidation of the propagation of the eel, a matter that hitherto had been obscure and shrouded in so much mystery. A long series of voyages to the Mediterranean, the Atlantic, and finally a two-year expedition round the world, all planned and led by Schmidt and financed by the Carlsberg Foundation, as will be remembered cleared the matter up and brought home a material of unequalled quality. Unfortunately he was not fated to see the working up of that material; it has now been handed to the Institute of Ocean Research which has been established in Charlottenlund Castle, the summer residence

of the late King Frederik the Eighth. Schmidt also took up important problems connected with heredity in conjunction with his investigations on the propagation of the eel. His successor as leader of the Department of Plant Physiology of the Carlsberg Laboratory was Professor Ø. Winge, the well-known heredity expert and cytologist; as a consequence the present field of the department is particularly genetics, though other questions, especially yeast fungi, are also studied. At the same time a third department, for investigations on fermentation physiology, has been segregated and housed in an older building under Dr. Niels Nielsen. The works from the Carlsberg Laboratory are published in special "Meddelelser" ("Communications"). The first twenty volumes (up to 1934) appeared both in Danish and in one of the world languages; now they are printed only in one of the latter. Few men have perhaps been given a more handsome monument than J. C. Jacobsen through these communications and through all that the Carlsberg Foundation has accomplished.

In expressly determining that no instruction was to be associated with the Carlsberg Laboratory, Jacobsen evidently wished to ensure that all those connected with the laboratory should devote all their time and all their ability to research. On that point not all will agree with him entirely. The combination of scientific research and instruction which is characteristic of the laboratories of all high schools of science is undoubtedly of value in itself, constantly brings in new blood and keeps the teachers fresh and in intimate contact with developments. Particularly in chemistry many Danish high-school laboratories occupy a very high place in modern research. This is true for example of the University's chemistry laboratory, whose leader, Professor E. Biilmann, among other achievements has created the kinhydron-electrode, employed everywhere in many acidity determinations, not least in soil investigations for the purpose of deciding the important agricultural question of calcium deficiency. It is also true of the University Institute of Physical Chemistry, which has just received a new building through a donation from the Rockefeller Foundation — evidence of the esteem enjoyed by its leader Professor Brøndsted, which is also testified by the many young workers, especially Americans, who have come to him for advanced



training. And finally it is true of the chemistry laboratory of the College of Agriculture, which is directed by Professor N. Bjerrum, who not only must be placed among the most prominent chemists of the day, but has made himself an esteemed name in physics by laying the foundation of the theory of the band spectra. The scope of this account unfortunately does not permit of a closer examination of the work of these two investigators, which has so many mutual points of contact.

Within biology there are three Danish institutions which occupy an especially prominent position, the University's Zoophysiological Laboratory (Professor August Krogh), the State Serum Institute (Dr. Thorvald Madsen) and the Finsen Institute.

Professor Krogh, who received his training under the well-known physiologist Chr. Bohr († 1911), the father of the two brothers referred to in the foregoing, was appointed in 1910 to the University as lecturer in animal physiology and was given a small laboratory in a section of a former professor's house. Among his works there was his investigation on the blood flow in the capillaries which showed that the capillaries adjust their blood-flow and consequently the supply of matter to the muscles according to the work of the latter; it secured him the Nobel Prize in 1920. His institute is now part of the *University Institute of Physiology* that was erected in 1928 out of a gift of 2,400,000 kroner by the Rockefeller Foundation to the University of Copenhagen, and it is scarcely erroneous to say that it was particularly his work which occasioned that magnificent gift. As with all the aforesaid donations from the Rockefeller Foundation, it was a condition that the State should undertake the working of the new or extended laboratories and procure sites; the Carlsberg Foundation and another Danish scientific fund, the Rask Ørsted Foundation, made smaller contributions towards the equipment of the institute. In this large and well-equipped institute, which contains five independent University laboratories and offers the best possible working conditions for studies in all branches of physiology, it is naturally Krogh's department which has been especially attractive to foreign scientists. The work of this laboratory

covers a wide field in both human physiology and comparative animal physiology. The most outstanding feature of the work there is doubtless Krogh's unusual experimental and constructive talents; a number of his apparatuses are sold from the institute's workshop and are in wide use, such as clinical metabolism apparatus, the cycle-ergometer for measuring

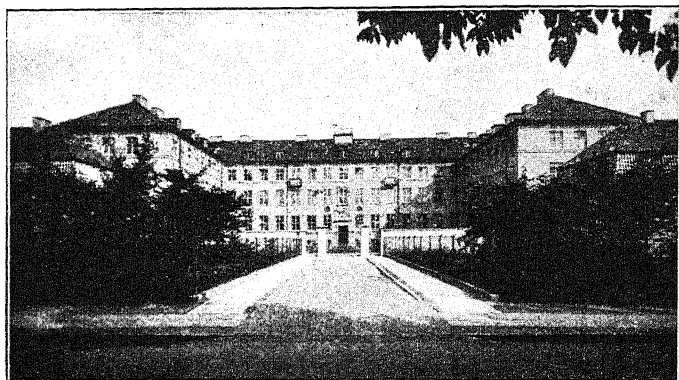


Fig. 4. The University Physiological Institute — the "Rockefeller Institute".

human work, a recording balance capable of weighing a human being with an accuracy of 1 gramme, apparatus for micro-analysis which permits of convenient and rapid work with great accuracy, and many others. The principal fields of work are muscle work (adjustment of temperature and respiration, etc.), influence of low oxygen pressure (the institute has a large steel chamber in which a man can remain for a long period, perform work, etc. under low pressure, whereby it is possible to study the influence of low atmospheric pressure on mountain climate, on aviators, etc.), research on renal function, on thyroid activity, on the nutrition of marine animals, and so on, and finally, the effects of heavy water on the organisms. The work of the Zoophysiological Laboratory has been published in 12 volumes of "Collected Papers".

The other departments of the institute, which in Copenhagen is popularly known as the Rockefeller Institute, are The Institute of Human Physiology (Professor E. Lundsgaard) and

of Biochemistry (Professor R. Ege) under the Faculty of Medicine, the Laboratory of Gymnastic Theory (Professor E. Hansen) and the Laboratory of Biophysics (the author), which together with Professor Krogh's laboratory belong to the Faculty of Natural Science. It is self-evident that a close co-operation exists between these departments, which often are of very great use to one another and for example have a common library, auditoria, etc. and hold scientific colloquies together. Without doubt the desire to create a centre such as this for all branches of physiology was the object of the Rockefeller Foundation's gift.

*The State Serum Institute* originated in Professor C. J. Salomonsen's University institute of bacteriology, where in 1894 a small department was opened for the manufacture of diphtheria serum, the curative effects of which had been realised at that time. The activities of the department grew so quickly that in 1902 it had to be removed to a separate institution, which, without being in direct connection with the University, was placed under the Government's health service; in addition to manufacturing diphtheria serum, which was supplied almost free of charge, the institute was to undertake scientific researches into matters connected with immunity. Since 1910 it has been under the leadership of Dr. Thorvald Madsen, who had been the soul of the daily work from the beginning. The history of the institute has been an unbroken series of extensions, for the scope of its work increased without cessation. In 1927 it was extended on a grant of 1.1 million kr. from the Rockefeller Foundation, and a sum of similar dimensions has in the years been spent by the Government on buildings and equipment. Now the institute comprises 12 departments and has a total staff of 171, of which 33 are scientific assistants. In addition to their current work all the departments are engaged on scientific research within their own particular sphere.

Four departments are engaged on the manufacture of serum, convalescent serum and vaccines and the controlling of the preparations made. In addition to diphtheria serum, the institute produces most of the sera in use today; during the war, for instance, considerable quantities of tetanus serum were supplied to all fronts. Among the convalescent sera special mention

must be made of serum against infantile paralysis and Weil's disease, the malignant sickness that is carried by rats.

Four other departments assist the country's hospitals and physicians with diagnoses on the basis of bacteriological and

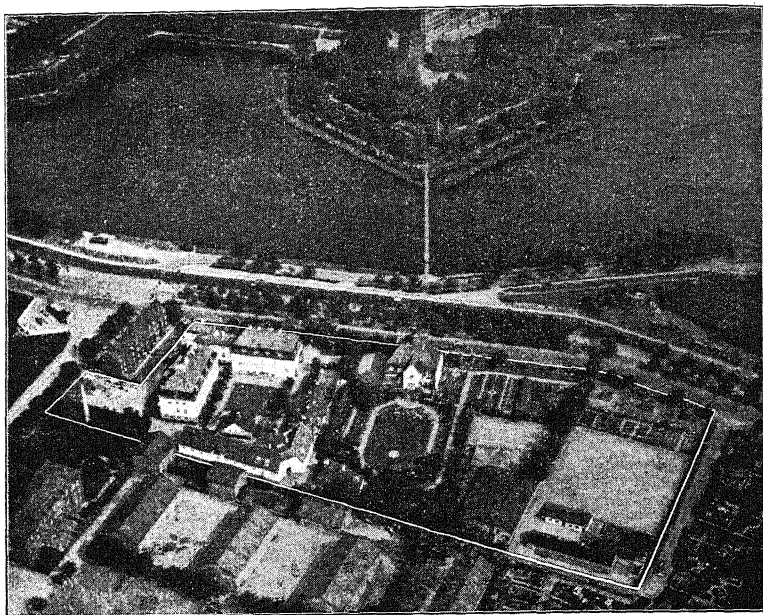


Fig. 5. The State Serum Institute. An air photograph taken before the last extension.

serological examinations of samples from patients, with epidemiological work, with difficult tuberculosis tests, and with sero-diagnostic syphilis tests, etc. (the "Wassermann" department). The Department of Diagnostics makes diagnoses of typhoid (and has a complete file of the typhoid-bacillus carriers in the country), undulant fever, whooping cough and many other diseases, including plague and cholera should the occasion arise. Particular mention should be made here of the difficult diagnosis of Weil's disease. The Epidemiological Department, which was started in 1924 by means of financial

support from the Rockefeller Foundation, is probably unique in its close collaboration with the country's medical men, and renders important help in the averting of infectious diseases. The facility with which practitioners can send in samples and receive an immediate reply means that most chances of an epidemic are nipped in the bud, and, if there is anything at all serious the matter, an epidemiologist travels out to the place at once in order to make the necessary investigations. Among the work of the Tuberculosis Department is its interesting investigations on tuberculous infection, also with support from the Rockefeller Foundation.

A blood-type department sends out annually 9000 doses of standard serum for the determination of blood types in transfusions; a hormone-diagnostic department assists in pregnancy diagnoses, and a separate department manufactures the manifold nutrition media required for the institute's microbe cultures; finally, the latest is a department for international standardization of sera, vaccines, etc. Dr. Thorvald Madsen's leading position on the League of Nation's Committee of Hygiene made it natural that the State Serum Institute has become the centre of the manufacture of standard sera and vaccines, and on several occasions international conferences on standardization have been held at the institute.

It is impossible in the space allotted to this article to give even an approximately exhaustive account of the extensive scientific work done at the Serum Institute within all the fields covered by its activities, and in which many foreign workers have taken a part. But it will be understood that this scientific work is vitally necessary for keeping its preparations and methods at the high level which it is universally recognized has hitherto been maintained. The work of this institute is of the highest importance to public health in Denmark, and its significance extends far beyond the country's borders.

In addition to being a research institute the *Finsen Institute* is a hospital. Niels R. Finsen, who died in 1904 at the early age of 44, the year after he had received the Nobel Prize, by means of experiments of classical simplicity founded the scientific study of the biological effects of light and the application of light in medicine. After having shown that the terrible skin tuberculosis (*Lupus vulgaris*) could be cured by treatment

with concentrated light (sunlight or arc light), a small light institute was erected in 1896 with support from the State and private people; in 1901 it was moved to its present position. Finsen's methodization of the clinical light treatment was exemplary, but his chief interest lay in scientific research, as expressed in the words of the statutes of the Institute that its principal object was "To initiate and promote investigation on the effects of light on the living organisms, mainly with the object of employing light in the service of practical medicine." In spite of a grave and incurable disease, which he bore heroically while simultaneously making a careful study of it on himself, he succeeded in extending light treatment to several other groups of diseases, and under his successor Axel Reyn the Institute has carried on the scientific and the clinical work in Finsen's spirit, its premises undergoing almost continuous expansion. The light-treatment appliances themselves have recently been radically improved by Dr. Lomholt, one of the chief physicians at the Institute. In addition to the original department for skin diseases, the Finsen Institute now comprises departments for tuberculous diseases of the throat, eye and bones, as well as for internal diseases, all of which are treated with light and, of course, by all the other methods of medical science. Moreover the Finsen Institute is associated with the Radium Station, where radium and X-rays are employed in the treatment of cancer and other diseases; in this manner it has been possible to set up a central place for radiation treatment of every kind. In form the Institute is still a private one, but its cost is defrayed by the State. The Radium Hospital, on the other hand, is carried on by the National Cancer Research Fund (about 150,000 members), which also has two other radium hospitals, one at Odense and one at Aarhus. The Finsen Institute Laboratory, which recently built new premises out of private donations, including a considerable sum from Reyn (died 1935), is now directed by Dr. O. M. Henriques, who has extended its sphere to many new problems in radiation-biology. Many foreign physicians have been trained at the Finsen Institute in light treatment, and its apparatuses and methods are in use all over the world; for example, light institutes have this year been opened at Prague and Riga, both equipped with Finsen appliances.

There still remain two special biological institutes to be mentioned. By means of a co-operation between the Carlsberg Foundation and the Rockefeller Foundation the *Carlsberg Foundation's Biological Institute* was founded in 1933 under Dr. Albert Fischer. It was built and equipped by the Carlsberg Foundation, and is carried on mainly by means of interest on the Rockefeller grant of 1 million kr. Dr. Fischer had been promised that sum for an institute either in Germany, where he had worked for some years as a guest at the Kaiser Wilhelm Institute, or in Denmark, and then the Carlsberg Foundation succeeded in getting the institute located in Denmark. This small but particularly well-equipped institute is intended for work on experimental biology, especially for the study of cells grown outside of the organism under glass; the institute does not give instruction. Of its equipment special mention should be made of an apparatus for the automatic taking of motion pictures through the microscope, even at the greatest magnifications. The present field of the institute is mainly within the three following groups of problems: growth (regeneration, differentiation, growth under hormonal influence, growth problems in cancer), physico-chemical investigations on the denaturalization of the albumins, and biological oxydation and reduction processes in connection with the metabolism of tissue cells. It is visited by many foreigners, some of whom work there for some time, while others familiarize themselves in the special technique of the institute.

The *University Fresh-Water Biological Laboratory* made a most modest beginning in 1897 when the Carlsberg Foundation purchased a deck-house from the cruiser "Ingolf", which had been used in a large biological and hydrographical expedition, and gave it to Professor Wesenberg Lund to help him in his fresh-water biological studies. This house, which measured only  $4\frac{1}{2}$  by  $5\frac{1}{2}$  metres, was set up by the lake Furesøen, an expansive water a little to the north of Copenhagen. In 1911 the Carlsberg Foundation rented three rooms of a house in Hillerød, 30 km. north of Copenhagen, for the laboratory, and at the same time a wood building owned by the University was set up at Lake Tjustrup, in Mid-Sealand. Finally, in 1930 the Foundation bought a house in Hillerød on the bank of the castle lake and defrayed the cost of fitting out its nine

rooms as a more modern laboratory. Since 1922 Wesenberg Lund has been professor in the University. This laboratory, which is also visited by many investigators from abroad, is outstanding in that in all essentials it is based on work in the field, as opposed to aquarium work. It has made thorough investigations (including physico-chemical) of Danish fresh-

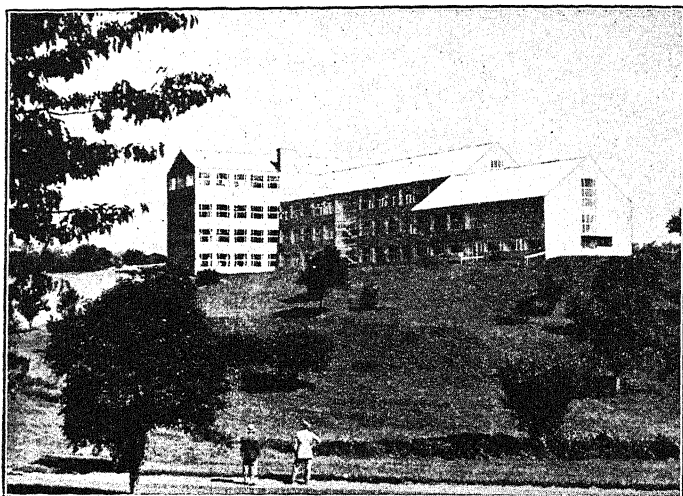


Fig. 6. The first building of the new Aarhus University, containing institutes for physics, chemistry and anatomy in the University Park.

water lakes as well as numerous biological studies of their lower fauna, and it has a very rich material and a comprehensive special library at its command. In addition, Wesenberg Lund has delighted the Danish reading public with several very interesting, popularly written accounts of the results of his researches.

During the past few years the country's 450 year-old university in Copenhagen has received an addition in the form of a new university, very incomplete as yet but growing rapidly, at Aarhus. This university, which is private but supported by the Government as well as by the City of Aarhus, already has institutes for physics and chemistry and for anatomy,



physiology and biochemistry; it has a large area at its disposal, very beautifully situated and laid out as a park, where both students' hostels and institutes are gradually being built, so that the exterior structure of the university will approach English and American models. There is every reason for expecting zealous work and valuable results from these young institutes.

This account must have shown how much Danish natural science owes to the Rockefeller Foundation. "Our gratitude shall be shown in work", as Professor Krogh has had hewn in the marble tablet in his institute recording the share of the Rockefeller Foundation in its genesis.

This account must also have shown that the Carlsberg Foundation is vital to Danish science. Few gifts have been so successful in fulfilling the object and wishes of the giver as this one.

Still other Danish institutes of natural science should have been referred to, of course; there would have been special reason for picking out several institutes of agricultural science, but they lie outside the scope of this article. What has been said must be sufficient to show that the Danish nation takes a reasonable share in the work done in our day to extend our knowledge and understanding of nature, work which always, sooner or later, will leave its mark in practical progress.

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# THE NATIONAL HEALTH SERVICE

By JOHANNES FRANDSEN, M. D.,  
Director of the National Health Service.

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By a Royal Ordinance dated 9th April 1740 a "Collegium medicum" was established in Denmark in order "that everything in relation to hygiene and its better observance may be carried out in the best manner and according to the best knowledge and with the best conscience by means of a harmonious Council."

Thus was the foundation laid for a central administration of the country's public health service.

In the course of time the scope of that central administration and its organization have been changed on several occasions. In 1803 the "Collegium medicum" was replaced by "The Royal Board of Health", which was given greater powers with more definite lines for its work. But it was only when this was substituted by the National Health Service, which was founded in 1909, and reorganized in 1932, that such conditions were created for the working of this central body that it could become more than a mere expert advisory organ for the country's legislative and executive authorities, could become a real centre for the work on public health and health-nursing in all its ramifications.

## PROVINCE

The National Health Service is the *chief adviser* to the Public on all matters requiring medical or pharmaceutical insight. This applies first and foremost to the various sections of the Central Administration, the ministries, who must requisition the opinion of the National Health Service on all questions whose settlement in the view of the ministry concerned requires

that insight. The National Health Service is also the highest advisory body for the other administrative authorities such as county councils, town councils, and in certain instances the Courts in matters relating to hygiene or medicine.

The National Health Service supervises public health and nursing. It must preserve close contact with health conditions in the country and see that health laws are observed. In the event of its becoming aware of non-observance of regulations in force, the attention of the responsible authorities must be drawn to it. The National Health Service must also submit suggestions for the improvement of public health whenever it considers it necessary. It should be mentioned in this connection that it is one of its duties to inform and guide the population by means of publications and lectures as to special health measures or special risks of disease.

The National Health Service is the chief supervisor of all hospitals, public or private, all nursing homes, childrens' homes and homes for the aged; of all prisons and workhouses, and on the whole of all premises which, having regard to their nature and the purpose to which they are put, are subject to special health regulations.

As a consequence, the head of the Service or his deputy has access at all times to each and all of these premises. When hospitals or the other institutions referred to are to be erected or radically altered, the plans must be submitted to the Health Service for its opinion.

Chemist shops or drug stores are privileged, and the National Health Service draws up rules for their working, sanctions their premises, fixes the prices to be charged for the medicines sold there, and inspects and supervises every one.

All physicians, dentists, midwives, sick nurses, masseurs and the like are under the National Health Service as regards their office, profession, business and duties as such, and it can order them to send in such notifications and reports as may be found necessary for the good of public health. The same applies to all proprietors of drug stores and to their assistants.

The National Health Service authorizes physicians and dentists to practice in their profession. As regards the former, the condition is that they pass the medical examination at a

Danish university and put in a year's service as assistant at a hospital approved by the Health Service for the purpose; for dentists the condition is the examination set by the Copenhagen School of Dentistry and two year's service with a qualified dentist.

No physican may call himself a specialist or practice as such unless he has gone through special training and thereafter has received authorization from the National Health Service as a specialist.

Midwives are authorized by the School of Midwives in Copenhagen. No one may practice as a physician, dentist or midwife without authority.

Sick nursing is not restricted to specially trained nurses, but nurses who have gone through a three-year training at a hospital approved of by the National Health Service as a training hospital, receive authorization as trained nurses from the Service, and only such authorized nurses are employed in public positions.

In various parts of the country there are stationed a number of physicians under the National Health Service. They have had special training in hygiene and act as medical officers: the city medical officer of Copenhagen, 23 county officers and 50 district officers. These officers have the supervision of the local health conditions, the hospitals and other public institutions, as well as practising physicians, etc. They are advisers to the local governments and are *ex officio* members of the local health and epidemic committees.

## ORGANIZATION

Administratively the National Health Service comes under the Ministry for Home Affairs, which is responsible for its annual estimate. This, however, does not affect it in its afore-said capacity of chief adviser on health questions to the various government departments, in which it corresponds and communicates direct with each one. The greater part of the health legislation of the country, however, is under the jurisdiction of the Ministry of Home Affairs, so that in every respect that is the ministry to which the National Health Service is most closely bound.

The head of the National Health Service, the *Director*, who is appointed by the Crown, must be a physician.

The Service consists of two departments, a Hygienic-Medical Department and a Pharmacy Department, as well as the Secretariate.

The Hygienic-Medical Department employs a number of physicians of special training as advisers, and also a practitioner and a dentist, who have the right to put forward their opinion on all matters concerned with proposed acts of parliament and regulations affecting practising physicians and dentists. The department also has attached to it two representatives of the national associations of communal councils (county and town councils) to participate in the handling of matters of general interest to public health in the country but not requiring professional medical opinion for their settlement.

The Director is responsible for the handling of matters dealt with by the Hygienic-Medical Department, including responsibility that the necessary expert advice is secured for dealing with them. This, however, does not include matters respecting recommendations to administrative hospital authorities concerning appointments to leading medical positions in the hospitals, or the filling of other vacancies in the public service. Such matters are dealt with by "The National Health Service Medical Council", which consists of the aforementioned advisers and the Director, with the latter as chairman. Neither does his responsibility extend to matters concerned with depriving physicians, dentists, midwives, etc. of the right to practise; such matters are decided by a special council consisting of the Director, the practitioner attached to the Service as adviser (physician, dentist or midwife as the case may be), and at least one member of the Medical Council.

All advisers attached to the department are appointed by the Minister for Home Affairs on the recommendation of the National Health Service, and the advisers with special professional knowledge as well as the practising physician and dentist are selected from among the leading capacities in their own particular sphere. The professional experts are selected as a rule from among the professors of the faculty of medicine or the leading clinicians at the large Copenhagen hospitals, and the two "practical" medical advisers from among the leading men

of the professional organizations. Each one communicates in writing or orally with the Director on matters on which he considers it necessary to have their expert opinion, and thus they are intimately associated with the work of the National Health Service; furthermore, they all perform this advisory work while discharging their actual duties as professors, chief physicians at hospitals, or private practitioners, whereby they represent a constantly fresh connection between the National Health Service and medical research work and with the exponents of practical medicine.

Finally, in connection with the work and scope of the Hygienic-Medical Department it should be mentioned that in 1935, on the recommendation of the National Health Service, the Minister for Home Affairs appointed a "National Health Service Food Committee"; the Director is chairman, and its members are experts in the science of nutrition — both scientists and clinicists. This committee deals with the various problems connected with nutrition and works for the adoption of the most suitable foods for the nation.

In the Pharmacy Department a pharmacist is chief and he is assisted by a graduated pharmacist working at a chemist shop. Matters in this department are decided not on the responsibility of the Director alone, but by him in conjunction with the two pharmaceutically trained officials. Where necessary the expert advisers to the Hygienic-Medical Department may be called in on matters to be dealt with in the Pharmacy Department.

In this department there are three specially qualified pharmacists who, together with the county medical officers, make the annual visit of inspection to the chemist shops, and also in the Control Laboratory of the National Health Service make the analyses of medicine and other samples taken at the shops on their rounds of inspection.

The Control Laboratory also has an analyst for testing medical specialities sold in the country.

Under the National Health Service, but working independently, there is a special committee consisting of medical and pharmaceutical experts whose task it is to draw up and revise "Pharmacopoeia Danica", and to make recommendations to the National Health Service concerning industrially produced medicines marketed as specialities.

The *Secretariate*, which consists of the Director's daily staff, has attached to it certain expert advisers, among which are a legal adviser (at present one of the judges at the Supreme Court of Judicature), an adviser with scientific training in X-ray technique (the professor of bio-physics in the Copenhagen University) and a hospital administrator; there is also a regularly organized collaboration with the Director of Veterinary Services and his staff, who assist the National Health Service in the handling of all matters connected with animal foodstuffs.

The head of the Secretariate is the chief clerk, who is a physician, and it employs both medically and administratively (juridically) trained secretaries as well as a head nurse. There is a separate medical-statistical department in it, under a university-trained statistician. This department collects and treats medical-statistical material, which is put together in two annual publications: "Medicinalberetning for den danske Stat" and "Dødsårsagerne i Kongeriget Danmark", as well as a ten-year summary of mortality causes in Denmark.

In addition to the pharmaceutical control laboratory the following institutions and laboratories are associated with the National Health Service:

*The State Serum Institute*, a very large institution doing both practical and scientific service; it manufactures sera and vaccines and is also the central epidemiological research laboratory for the entire country; it undertakes many other diagnostical investigations, among which are the various blood tests for syphilis and the more special bacteriological tuberculosis tests. One of the Serum Institute's junior epidemiological experts is regularly attached to the National Health Service for sending out during epidemics to assist the local health officers;

*The Institute of General Hygienic Research*, which also draws up diet regulations for hospitals and other public institutions, and

*The State Vitamin Laboratory*, which analyses foods advertised for their vitamin content as well as therapeutical vitamin preparations.

With the National Health Service as organized in Denmark, no question relating to public health and no matter requiring

hygienic or medical insight can be decided without the assistance of the National Health Service or the medical officers attached to it. The central administration of public health, the National Health Service, has been given such a wide scope, such far-reaching authority and powers, and is equipped with such ample expert assistance, that the conditions under which it works are the best possible. But it must be added that the population for whom this work is done, and with whom the Service must co-operate, meets its health work with sympathy and interest. The condition necessary for getting to the bottom in the hygienic work, so that it really becomes a labour for the health of the people, is the population's understanding of the nature and value of that work and its means and aims. Laws, control, police regulations can advance matters a little way — often a long way — but never sufficiently.

In Denmark there is a population well educated and uniformly educated, one which for generations, through the co-operative movement and later through the labour movement, long ago learned to understand the value and necessity of working together; from its clear understanding of what co-operation requires of the individual it also learned that the common welfare takes precedence over that of the individual. Thus in this respect too the working conditions are good for the National Health Service and for those who on the whole work in the service of public health.

Consequently, the Danish community has every right to expect that the National Health Service not only will be in a position to watch over health conditions in this country, but also — and particularly — be the live centre of enterprising and intensive labours for public health and nursing, so that the sick may have the proper treatment at the proper time, and so that the healthy may preserve their health through ever-increasing measures taken to prevent disease.

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# THE HOSPITAL SYSTEM IN DENMARK

By JOHANNES FRANDSEN, M. D.,  
Director of the National Health Service.

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At the close of the 18th century and the beginning of the 19th a number of laws were enacted, of great and fundamental importance to public health in Denmark.

Regulations for combating epidemics were laid down in 1782.

In 1790 a Royal Ordinance made it obligatory for all suffering from venereal disease (syphilis) to seek medical attention for it, and public physicians were appointed to give the necessary treatment free of charge to such patients who could not or would not pay what it cost. Physicians, and in fact the public at large, were charged with the duty of notifying or causing the notification of such cases as came to their knowledge.

Compulsory vaccination for smallpox was introduced in 1810.

In most cases the cost of these public health measures was laid on the county authorities.

It was also in that period that the foundations were laid for the Danish hospital system. The Royal Ordinance of 6th June 1806 commanded the county governors to provide for sick nursing by erecting and running the necessary number of hospitals in their particular counties, to which the poor, and any person who could not receive nursing and attendance in his home, could be admitted.

Prior to that time a small number of hospitals had already been built various parts of the country, most of them for isolation purposes and for the treatment of venereal patients; it was the Ordinance of 1806, however, which first established

that it was society, the Public, whose duty it was to provide accommodation for nursing and treating invalids unable to obtain these in their own homes, and that this duty lay not with the State but with the local authorities, the county councils.

In the course of developments certain parts of the hospital system have been segregated from the general system, partly with regard to both administration and working costs, and partly also with regard to the latter alone.

*The mental hospitals* have been taken over by the State, which has thus undertaken the obligation of providing for that part of the hospital system. These institutions are now administrated by a State directorate under the Ministry of Home Affairs, and the cost of maintenance and working is granted by Parliament on the annual Finance Bill. There is one exception to this rule, the City of Copenhagen having voluntarily undertaken to manage its own mental hospitals together with the general hospital system, although the greater part of the cost is refunded by the State. At the present time there are 9400 beds for mental patients, or 2.6 per 1000 population.

Curative institutions for tuberculosis, sanatoria and hospitals, have been erected and are managed partly by the private "National Society for the Combating of Tuberculosis" and partly by the county and borough communes; however, the law provides for a very considerable State grant towards both the erection and the running of these establishments.

Tuberculosis sanatoria and hospitals at present have 3895 beds, corresponding to 1.1 per thousand of the population.

With few exceptions the epidemic hospitals are run as separate sections under the general hospitals, and the State refunds the greater part of the cost of working them. The number of beds available for patients with epidemic diseases is 3158 in all, or 0.9 per 1000 inhabitants.

The same applies to the hospital treatment of patients with venereal diseases. The ambulant, gratis treatment of these diseases is now defrayed entirely by the State.

The hospital system proper, the general medical-surgical hospitals with their various special departments, is today, as when the law passed in 1806, a communal task, resting upon

the county communes, which consist of the rural communes in the county, and the borough communes, which have the same communal autonomy as the county communes.

In 1806, and indeed throughout the greater part of the 19th century, the demand for hospitals was not great. As long as the hospitals were unable to offer much advantage to patients, in respect of examination and treatment, over what they could obtain in their own homes, it was mainly social indications that governed their admission. It was with the growing knowledge of surgery that the demand for hospital treatment began in earnest towards the end of last century, and it became irresistible in its insistence. It was then found that the responsibility for the hospital system was placed on the proper shoulders. The local authorities recognized the importance of the demand and satisfied it to the full. This is proved by figures alone:

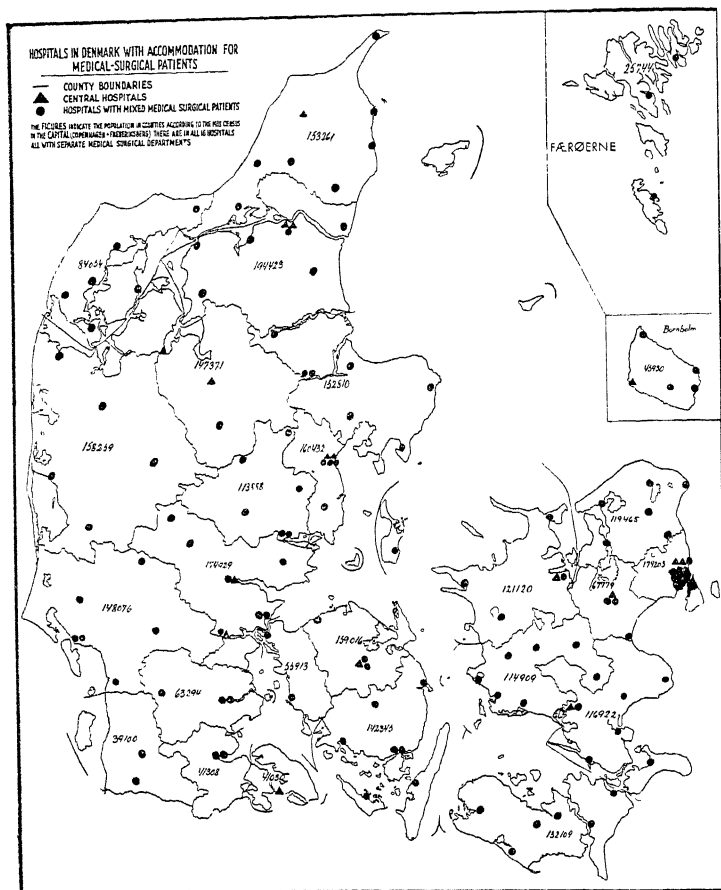
	No. of hospitals	No. of beds	
		in all	per 1000 pop.
1800 .....	15	—	—
1825 .....	25	—	—
1850 .....	40	—	—
1875 .....	93	3,773	2.0
1900 .....	109	5,568	2.3
1936 .....	146	17,038	4.6

Figures alone, however, cannot give the complete and true picture of the development of the hospital system. Hand in hand with the increase of the number of beds there has been the revolutionary and very costly change in the equipment of the hospitals required by developments within medical science.

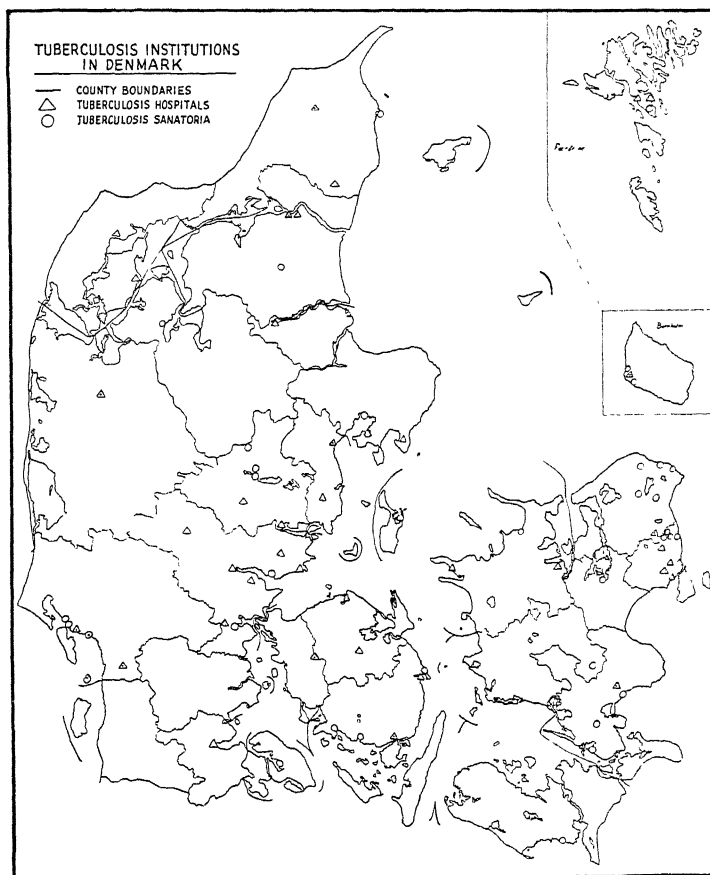
In Denmark modern developments as to hospitals may be divided into two periods.

The first period extends over the first quarter of the present century. In those years a number of new hospital buildings were put up, and practically all those existing at the time were remodelled and extended. These constructional undertakings were mostly dictated by surgical considerations. It was the surgical diseases that were most insistent in their demand for hospital treatment, and accordingly the hospitals had to be arranged to suit. Apart from Copenhagen, where for a long

## HOSPITALS IN DENMARK



## TUBERCULOSIS SANATORIA IN DENMARK



time back there have been large hospitals with several departments, the hospitals built at this time with one or two exceptions were of one large department each, with one chief physician, who naturally had to be a surgeon.

To a certain extent the local situation of the hospitals here and there in the country seems rather fortuitous, and the same may be said of the growth of the individual institutions in the matter of their actual size. The population wanted to be able to get to hospital in the shortest possible time; in this they were backed up by the doctors, because as already stated most of the admissions were patients with surgical diseases; this explains the large number of hospitals, spread over the entire country.

Which of these hospitals grew large in size depended not so much on the more or less fortunate geographical position, as on the more or less outstanding surgical skill of the house physician and his particular ability to gain the confidence of the people.

The second period is the present one.

The rapid developments in the last ten to twenty years, especially within the spheres of internal medicine and radiology, as regards both examination and treatment of patients with medical diseases, made the prevailing arrangement of the hospital system insufficient; these rich developments can benefit the people only when there are hospitals with various special departments, for neither the many technical appliances necessary for the work of examination, nor the treatment itself can in many cases be applied elsewhere than in hospital departments specially equipped for the purpose. Therefore a reorganization of the system all over the country was necessary before the population was ensured a share in the great blessings given us by the progress of medical science.

About the year 1930 the National Health Service laid the matter before the competent authorities and urged the necessity of endeavouring to bring that reorganization about. The Service suggested the following plan:

Every county should have one or two so-called "Central Hospitals" with a surgical, a medical and a radiological department as the nucleus; other special departments could be added in time, firstly one for eye diseases and then one

for diseases of the ear, nose and throat. In addition to the county's central hospital or hospitals, there would be the necessary number of general medical-surgical hospitals of the usual type, with only one chief physician, who should be a surgeon by training. These general hospitals should not be smaller than for 50 beds, as it is of importance that the chief physician should practically devote his whole time to the work at the hospital and not have a private practice.

In the few years that have elapsed since the National Health Service presented its proposal it has been adopted by a number of the county councils. By means of considerable and costly alterations and erection of new buildings there are now Central Hospitals in more than half of the counties, and the preparatory work for the reorganization of the hospital system is now in full progress in the others.

Patients admitted to hospital are treated by the regular physicians at that hospital; other physicians cannot take part in the hospital work and treatment of admitted patients, except of course foreign medical men sojourning in the country for purposes of study.

The physicians at the hospitals are all permanently appointed and practically all "full time". Chief physicians, however, have a right to consultative and advisory practice outside of their hospital duties. Chief physicians are permanent and salaried, with a right to a pension. The term of appointment of the assisting physicians is limited to a shorter or longer period of years.

The charge made for a bed at a hospital, which covers both board and treatment as well as nursing, is fixed by the local hospital board, subject to the approval of the Ministry of Home Affairs. There are only two different charges, one for common wards and one for private wards. Outside of Copenhagen these are about 4 or 5 kr. and about 10 kr. per day respectively, and most hospitals have an additional, fixed charge for operations and X-ray examinations. In Copenhagen the charge for common wards is kr. 1.20 and for private wards 12 kr. per day, and there is no extra charge for the aforesaid special examinations and operations. Active members of recognized sick clubs (which means about 70 per cent. of the population) pay only half the common ward charge, and it is

actually borne by the sick club. Thus the hospitals are not fully recompensed by the payment made by patient or sick club. The balance is covered by the local authorities, who have their revenues from taxes.

There are very few private hospitals in Denmark, and at any rate in the country's hospital system as a whole they are of little importance.

It was said at the beginning that the Ordinance of 1806 established the principle in this country that the provision of hospitals for the people was a social task; that principle has continued unaltered in all these 130 years. In that way Denmark has been spared the arbitrariness of private initiative in this sphere, and she has now a uniform hospital system. When to this it is added that this uniform hospital system at all times has been fully efficient and capable of guaranteeing the people the best possibility of treatment, the explanation lies in the circumstance — which also was created by the Ordinance of 1806 — that the onus of hospital service was laid *not* on the State but on the local authorities. Within every county the county hospitals are managed by representatives of the county population, the people who form the potential patients of those hospitals. This has created the intimate connection that exists today between the population and their hospitals, and explains the interest and spirit of self-sacrifice towards the demands made upon them for the hospital system; that interest and public spirit has been unabated during the past generation, and in the last ten years has been magnificently manifested by the granting of the large sums required by the reorganization now in progress.

In the truest sense of the word the Danish hospitals are owned by the country's population, and the country's provision with hospitals is regarded and has been grappled with as a national cause.

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# PHARMACIES IN DENMARK

By K. Aa. KJÆR

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Trading as a pharmacist or druggist is subject to a privilege system in Denmark.

Originally all pharmacy privileges could be transferred by the proprietor to another person if the latter had the necessary capital. In 1842, however, a Royal Ordinance introduced the system of personally privileged pharmacies in the sense as understood today, but it applied only to pharmacies opened after that date, so that those which could be sold were still capable of being transferred for a consideration. The Pharmacy Act of 1932 finally ordered their commutation, and when this has been brought to an end, all pharmacy privileges will be based on personal licences. By this is meant a licence issued solely to the individual and not transferable by the proprietor to another. When a licence lapses the vacancy will be advertised and may be applied for by anyone having the necessary professional qualifications.

In order to obtain a licence for running a pharmacy the applicant must have graduated in pharmacy, must be a Danish subject, have full disposal over his estate and the management of his own affairs.

No licence to trade as a pharmacist is issued to pharmaceutical graduates who have reached a certain age limit. Until 1942 this age limit is 55 years, whereafter it will be reduced by a year every three years, until in 1955 an age limit of 50 years has been reached.

This regulation means that not all qualified pharmacists can hope to be promoted to licensed pharmacists, for which reason it will be necessary to make a selection among all applicants for a licence on the basis of seniority and professional qualifications. Naturally, judgment of professional qualifications

will always be somewhat arbitrary; but in order to prevent any injustice being done, all applications for a vacant licence are placed before a Promotion Council, consisting of two members, one chosen by the Pharmacist Society and the other by the organization of pharmacy assistants. The Promotion Council declares which it considers are the five best qualified applicants, in numerical order of merit, whereafter the National Health Service gives its opinion on the claims of all applicants. Both declarations are forwarded to the Ministry for Home Affairs, where the final decision is taken; the royal licence is then issued.

In analogy with the age limit for acquiring the first pharmacist licence, the Pharmacy Act determines how long a pharmacist may hold a personal licence to run a pharmacy. This, however, applies only to licences issued subsequent to the enactment of that law. Until 1942 the age limit is 75 years, whereafter it falls one year every three years until the age limit of 70 is reached in the year 1955.

Thus holders of licences issued prior to the Act are not subject to the provision as to age limit; but any pharmacist with a personal licence has the right to surrender it and retire on a pension at the age of 70.

When the present Pharmacy Act came into force about one third (about 100) of all the pharmacies in the country were salable. Their commutation is proceeding rapidly, so that only 25 to 30 remain. Presumably they will all have been converted by the end of 1938. The work of commuting them is in the hands of a committee known as the "Commutation Fund". The rules governing its activities are laid down by the Ministry for Home Affairs.

The proprietor of a commuted, salable pharmacy may obtain permission to continue it on a personal licence, and he has the right to pass it on after his retirement or death to his widow, one of his children or children-in-law, provided that the transferee is qualified to hold a licence.

The amount of compensation due to the proprietor of a salable pharmacy for commutation depends upon various circumstances. Consideration is given to the profits on the business, and to whether the pharmacist wishes to continue to run it, etc. The sum is paid to him, but thereafter it is

debited to the privilege itself and repaid by annual instalments of  $2\frac{1}{2}$  per cent. of the original compensation sum. The period of repayment is fixed in every case by the Ministry for Home Affairs and is usually about 37 years.

Pharmacists with a personal licence pay an annual charge, calculated according to certain rules, on both the net profit of the business and its turnover, though no charge is payable on incomes of less than 6000 kr. and on turnover under 40,000 kr. These charges, which rise progressively, are paid into the Pharmacy Fund.

The Pharmacy Fund supervises everything concerned with the economy of the pharmacies of the country and administers the incoming charges and fees. The Fund bears the cost of subsidizing and pensions to pharmacists and their widows. It makes grants towards the pensions of pharmaceutical assistants on certain conditions, and defrays the expenses involved in connection with the activities of the pharmaceutical inspectors and the Pharmacopoeia Committee.

Whereas the scope of the Pharmacy Fund is restricted to the economic side of the pharmacy business, everything else is under the jurisdiction of the National Health Service.

The latter consists of a Medical Department and a Pharmacy Department and is the chief adviser on all matters requiring medical or pharmaceutical insight. It is chief supervisor in everything concerned with the control of medicines, and by means of circulars issues regulations for the equipment and working of pharmacies, etc.

The fundamental principles in the present system of pharmacies are still the same as those in an Ordinance given in the year 1672, whereby the authorities endeavoured to secure the population good and cheap medicine. The provisions of that law, which is called the first Danish Pharmacy Act, were on the whole so comprehensive that the present system to some degree rests upon it.

Scattered all over the country are pharmacies which as regards their internal arrangements, equipment and method of working must comply with the legal requirements. At every pharmacy there must be at least one graduated assistant, and the premises must be open to the public day and night. In exceptional cases the Ministry for Home Affairs can grant

permission for a pharmacy to be carried on wholly or partly without assistance.

In order to meet the people's desire for easy and convenient access to medicinal goods, pharmacies may on application be granted permission to arrange for outside sales of such medicinal goods as are obtainable without a doctor's prescription. These "over the counter" branches are usually arranged in places where the distance to the pharmacy is long or laborious. They are now widely distributed, for they are also used as receiving offices for prescriptions. In that way the people often save a long walk to the pharmacy. One or several times a day the prescriptions are collected for dispensing at the pharmacy which supplies the branch.

In addition, physicians at places where there is no pharmacy can be given permission to supply their patients with medicine, bandages etc., which they receive ready for use from a certain pharmacy. In special cases, on isolated islands for example, a physician may be given more extensive authority to prepare and distribute the medicaments intended for his patients.

In order to ensure that the public gets good and proper medicines there is a committee under the National Health Service, the Pharmacopoeia Committee, whose work it is to keep the pharmacopoeia abreast of developments as well as to cause and supervise the drawing up of the collections of formulae which are closely connected with the pharmacopoeia and mainly contain formulae for modern, good and cheap medicines. The committee, whose members represent the highest medical and pharmaceutical science, also acts as adviser to the National Health Service on certain matters.

By means of the National Health Service there is a control of medicines made in the pharmacies and also of those made industrially. To look after this branch of the activities of the National Health Service it has three pharmaceutically trained inspectors, and also an analyst who directs the analysis of proprietary medicines. The latter are mainly produced at factories.

At the pharmacies the supervision is exercised by these three pharmaceutical inspectors. At least once in every year every pharmacy is inspected for the purpose of ascertaining that the National Health Service regulations are complied with. The inspector makes a general examination of the stock-

in-trade, both raw materials and preparations. In the case of preparations or medicaments which take too long to test on the spot, he takes samples for analysis at the laboratory placed at his disposal.

The control of proprietary medicines includes, in addition to contents and composition, their name, price and how they are offered for sale. In order to make this control as effective as possible the National Health Service is empowered to require any information necessary from the manufacturer. If justifiable objection can be raised against a medicine, its composition, its quality, its price or the like, the National Health Service can prohibit its importation, sale or distribution.

To prevent several manufacturers from distributing the same speciality under different names, and to prevent the work of the control laboratory from becoming insurmountable, there is a regulation that all preparations marketed as proprietary medicines must first be approved of by the National Health Service as such. Decisions as to whether a preparation is to obtain this approval are taken in conformity with the rules laid down for the purpose, after the Pharmacopoeia Committee has had an opportunity of giving its opinion.

In this manner the authorities have a hand in ensuring that only good and therapeutically valuable preparations are sold to the public, and through the work of the control laboratory the National Health Service is able to sort out less valuable preparations or those whose price is not in reasonable proportion to the value of their contents, and thus help in protecting the public from bad or exorbitantly priced medicine.

Judging whether a speciality is too expensive in proportion to its component substances takes place on the basis of the prices in the official list of medicines. This list is issued by the National Health Service and the prices on it are fixed on the basis of the average wholesale prices. A revised list is sent out every year, but supplementary prices are circulated in the event of heavy fluctuations on any one article in the course of the year.

To ensure that the public is not decoyed by misleading advertisements to buy medicines they do not need, the National Health Service sees that the regulations laid down for advertising are not infringed.

Whereas the pharmacies formerly were the only places where

medicines were made, a number of medicine factories have grown up during the past twenty or thirty years. The medicines they produce, supplied in their own packings through the pharmacies, have supplanted the pharmacy-made medicines to such an extent that one-third of all prescriptions call for proprietary medicines.

In Denmark the medicinal industry occupies a very high place, and the factories long ago established their right to exist by the marketing of several new and therapeutically valuable medications. Several of the preparations they make could not, at any rate at the present time, be made at a pharmacy. This applies especially to the organo-therapeutical preparations, the physiological effect of which can be determined only by biological means. Their standardization requires a specially and highly trained staff such as pharmacies usually have not at their command.

*Lovens kemiske Fabrik* has made a very considerable contribution to medicine by means of its intensive work on the production and isolation of various sexual hormones, by physiologically determining their effect and by marketing them in a form that will keep. In other spheres, too, this factory has been a pioneer; to a great extent it was due to its work that insulin could be sent out in Denmark as early as in 1923. This remedy is now produced by the self-supporting institution known as the Nordisk Insulin Laboratorium and is sold under the name of "Insulin Leo".

Another leading medicinal factory is *A/S Ferrosan*, whose speciality is the manufacturing and standardization of concentrated vitamin preparations, in which it has obtained very successful results. This factory also produces many other important medicaments; its liver and gastric preparations, which are of high quality, are widely known. It has a separate department in the form of the "*Dansk Chemo-Therapeutisk Selskab*", where the important preparation Sanocrysin is made; it has gained a firm position in the treatment of tuberculosis.

Finally there is *A/S Medicinalco*. This establishment, whose main line is the manufacturing of medicaments containing vitamins and hormones, has made its name known far beyond the borders of Denmark by the marketing of Ventriculin and Pylorin. Medicinalco was the first factory in the world to send

out a preparation made exclusively from the pyloric portion of pig stomachs.

Besides supplying the home market, all these factories enjoy a considerable export trade, built up on the excellent and uniform quality of their preparations.

Insulin, liver and gastric preparations, which in Denmark are numbered among the so-called "vital" preparations, have to be sold by chemists without a profit, though they are allowed to add 10 per cent. to the wholesale price in order to cover overhead charges, etc.

Similar humane measures have been taken with respect to the medicaments sent out from the State Serum Institute.

The *State Serum Institute* manufactures sera and vaccines, and thus in addition to being a scientific institution may be called a kind of medicine factory. It produces sera against diphtheria, tetanus, scarlet fever, meningococcus infections, etc. as well as vaccines against diphtheria, tetanus, small-pox, paratyphoid fever, cholera and catarrhal infections. Of the vaccines, diphtheria vaccine is sent out in the form of purified anatoxin combined with aluminium hydroxyde. This preparation is made according to a method devised at the institute. Energetic work is done at its laboratories on purification and concentration in order to improve the various preparations and find new and better manufacturing methods for them.

Most of the sera and vaccines, which are principally used at the hospitals and special vaccination centres, are usually supplied free of charge direct from the State Serum Institute. On the other hand the institute has depots of sera at the pharmacies in various parts of the country; for example in parts where there are vipers the pharmacies have a stock of anti-viper serum.

As the foregoing has shown, the distribution of medicines etc. proceeds through the pharmacies, whereas they are made both there and at the medicinal factories. In Denmark there is good proportion between the number of pharmacies and the number of medicinal factories. By means of a well-organized pharmacy system and an effective medicine control the Danish public is ensured the easiest possible access to the best possible medicine at the lowest possible price.

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## RECREATION IN DENMARK

By HANS DRAGEHJELM

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In Denmark, with its 3.7 million inhabitants and an area of 44,300 sq. kilometres, completely surrounded by sea except for a short stretch on the south, the main occupations since ancient times have been *agriculture* and *animal husbandry*, *fishing*, *shipping*, and *handicrafts*. The people are not doomed to a joyless existence in large industrial centres. No matter where they live, they can quickly get out into the open country, to woods, lakes and seaside. If Denmark is a small country, present-day means of communication, especially cycles and motor-cars, have made it still smaller, thanks to a network of roads comprising 7690 km of main roads and 43,940 km of by-roads. With a motor-car no place is more than a day's run away; the average distance covered by the omnibus lines is 24 km.

The one large city in the country, Copenhagen the capital, is made up of three communes: *Copenhagen*, *Frederiksberg* and *Gentofte*, and has about 900,000 inhabitants. It has the splendid advantage for such a city of lying right out on the open sea on The Sound — which has a coastline of 66 km —whence a fresh breeze flows through its streets at all times. The great majority of the population of the country get their daily exercise cycling to and from their work, and, in proportion to the population total, Denmark has a greater number of bicycles than any other country. Small collective allotments ("colony gardens") extend their belts of green around the towns, nowadays especially, and most Danish towns with their large gardens attached to the houses have from very early days resembled the garden cities of modern times, planned with a special eye to recreation.



Strangers become fascinated with this idyllic state of affairs, one that has set its mark on the minds of the people, as it also has become reflected in art and literature. Although Denmark in no way escapes the crises of life today, it is nevertheless a fact that large numbers of foreigners make their way here during the holidays, to enjoy the peacefulness and restfulness which, according to what they say themselves, are so difficult to find elsewhere; statements of this kind are by no means uncommon in the Press.

Of the 88 boroughs in Denmark, only five apart from the capital can boast of a population of 30,000 or more. Conditions in the country's 1305 parish communes almost everywhere are conducive to a health-giving open-air life so to say right outside every man's door. The climate favours it; the average temperature in July is about 17° Celsius.

Denmark is essentially an island country. Even the bards of the seventeenth century sang of Denmark as a fertile field "encircled by billows blue". Sixty-eight of the towns are seaports, and the total number of harbours along the 7437 km. of coast is 150. The waters between the five hundred islands are considered to be the finest yachting grounds in the world. A five-metre wind is the prevailing average in belts, fjords and sounds. Stormy days during the summer months, fogs and tides — difficulties with which yachtsmen have to contend in many places, are practically non-existent here. The call of the sea has been in the blood of the Viking races since early times; Knud Rasmussen, the Greenland explorer, found this expressed in an Eskimo poem which he translated in "Across Arctic America"

"The great sea has set me in motion

"Set me adrift

"Moving me as the reed moves in a river.

"The arch of sky and mightiness of storms

"Have moved the spirit within me

"Till I am carried away

"Trembling with joy."

In Denmark, as in so many other countries, many sections of the countryside and many beauty spots are protected by

law, thanks especially to the untiring efforts of the National Society for the Preservation of Denmark's Amenities. At the present time these protected areas comprise fifty-seven large stretches of country and five hundred of smaller extent. In many places this has meant that beautiful views have been preserved for posterity. A Bill was recently brought before the Danish Parliament aiming at securing free access to all uncultivated beaches in Denmark, a right which has been traditional for times immemorial. In this low land of Denmark, whose only rock formations are in the island of Bornholm, hills and banks are natural vantage points. In addition, however, there are the 157 lighthouses along the coasts to delight those who like climbing for the sake of the view; about 36,000 people visit them every year, and also the towers of the 2200 churches or other erections built specially for the purpose, for example "Odin's Tower" at Odense, built in 1935.

Those who travel about Denmark will often have their attention drawn to buildings or expanses of country of attractive interest. Of the churches referred to, 1700 date from the Middle Ages and therefore are worth seeing for that reason alone. Of the 204 manorial houses with their parks and forests, the great majority are beautiful in both situation and architecture. The same may be said of the 1200 protected buildings and the 250 ancient monuments of historic times. And mention should also be made of the eight thousand protected ancient barrows, which speak their own tongue to the rambler.

Denmark's youth today has the athletic mind. Young women as well as young men, school boys and girls, go without a hat. "The Girl with the Bicycle", by the sculptor Utzon-Frank, set up in Raadhuspladsen, Copenhagen, in 1936, is a symbol of young Denmark.

But in talking about recreation as a whole, embracing every kind of free-time pursuit and physical exercise, no figures can be given for large sections of the community; many people look upon recreation as a private matter. A good Danish rule of life, minted by the poet Erik Bøgh: "I will, so help me, be myself alone" has not been made obsolete by the passage of time. Recreation in Denmark has its own democratic versatility, devoid of any "unification" or "compulsion". It may be that recreation here receives less from the public purse than in

many other countries, but spheres that are closely related in such domains as education, hygiene, social purposes and trade are all well supported. Private and public grants, made according to the principle of "help to self-help", and the consequent collaboration, are linked up in a manner that is difficult to describe in few words. Perhaps it would be best to say that "co-operative work" is the rule for all public recreation and for all trade in Denmark, typified especially in agriculture. A calculation has shown that State expenditure on the promotion of recreative pursuits of various kinds has been about eight million kroner, while for the three communes of the capital the sum is four millions in all.

In the following some of the more outstanding spare-time occupations and pursuits will be picked out, those which may be said to be especially conspicuous in Denmark having regard to natural conditions in the country and also to historical development.

## DANISH COLONY GARDENS

The colony garden adds its own particular physiognomy to the Danish landscape. Few places provide such a setting for the Danish flag than the magnificent belt of gardens which winds its way round the capital city. On a midsummer day, when the red-and-white crossed bunting flies out under the blue sky from more than 15,000 white poles, the entire landscape becomes not merely grand, but in fact overwhelming.

Since the very inception of the colony-garden movement the flag has been inseparable from the garden. As soon as the fence was put up and the summer-house built, up went the flag-pole. It was as if the man in the garden wished to say to all the world: Here is a patch of Denmark's soil, and it is mine. Here I live and spend my leisure. Here I have my hobby, and happiness for me and mine.

It is a nature and culture picture, this garden belt, dear to all Danes and gaining the applause of every stranger coming to the country. Every Danish town of any size has this girdle of colony gardens. It is the town man's encounter with the soil, a unity of diversion and work, and it is no exaggeration to say that the colony-garden movement has had its share in

changing the social mentality of the people. The family idyll thrives and blooms like the plants in the little patch between the gate and the house. In the light summer evenings after the day's toil, out come the gardening implements and watering can, and there is a personal joy in seeing things grow. The worker from the daily treadmill of the workshop finds himself face to face with the mystery of organic growth; he learns to know the changes of the months and the rotations of the years.

South Jutland's old colony gardens, of which some are still left, were the birthplace of all the world's colony gardens. When they were started in 1820 there were no others in the whole of Europe. In 1830 they were copied by the city corporation of Leipzig, where afterwards it was the famous physician Dr. Schreber who became the advocate of the idea. The German colony garden movement took its model from Denmark, and since then several other countries, especially in Western Europe and in Scandinavia, have gone in for them.

Whereas the commencement of the first colony gardens in South Jutland was the result of the sympathy and initiative of the authorities, it was destined to be one man, Jørgen Berthelsen of Aalborg, who was to lay the foundations for the enormous growth of present times. His idea was to lay out small gardens for the many workers in the town, keeping them in one collective colony; his plan was carried through in 1884. The very next year he was in a position to invite the members of the town council to come and see these workmen's gardens, and the visitors did not know what to admire most: the flourishing plants, the decent summer-houses, the means devised for amusing the children, or the extremely orderly arrangement and planning of it all. The gardens became one of the sights of the town; the press wrote about them, and similar gardens soon began to be laid out in other places. The system was that the piece of land rented was divided up into allotments of about 200 square yards at an annual rental of 8 kroner; the rent was paid to the treasurer of the allotment holders' society, which looked after matters of general interest.

The number of colony-garden societies having increased by leaps and bounds (in 1908 there were 5000 of them in Copen-

hagen and environs), there was formed a Colony Garden Association for Denmark, and it now embraces almost every one of the societies in the kingdom. The Association helps the individual societies by conducting negotiations with the landlord when a lease is to be drawn up, and everything is done to make the lease cover as many years as possible. The ideal aimed at is to create permanent garden colonies.

Among the many activities of the Association, mention should be made of its work for the appointment of competent advisers. In 1920 the Minister of Agriculture appointed a Government Adviser on Horticulture, who has a number of assistants under him. The Association has helped its members by obtaining dispensation from the Building Act, so that summer-houses of less than a certain ground area (8 sq. metres, in certain cases 12 sq. metres) do not have to pay building charges. All the members receive a small monthly periodical called "Kolonihaven". Demonstrations, shows, and courses are arranged by the Association, which also administers the demonstration and model gardens established in every province. It should also be mentioned that co-operative purchases of seeds and, for example, fertilizers, are encouraged. In recognition of its useful social activities the Association receives an annual Government grant of 30,000 kroner.

The colony-garden man has many joys, but he and his idyll are placed in a sorry position the day he receives notice to quit. More than once a man has been driven away from his plot to make way for the erection of a new residential quarter there. But he starts from the beginning again when, through the good offices of the Association, he and his fellow-colonists are directed to new land somewhere else. That is proof of how deeply-rooted the colony-garden idea is in the minds of the urban populations. It is a pleasure to see how land close to the towns, once idle and valueless, becomes transformed piece by piece into luxurious little gardens.

The colonist individually devotes himself more or less to the particular branch of horticulture he fancies: potato-growing (an important line in Denmark), vegetables, fruit, flowers. The colonies have their own "sport", which consists in being first with the year's rhubarb, radishes or potatoes. Naturally the colonist counts on a certain income from his produce; he

endeavours to get his things ready for the time when they are expensive to buy, so that he saves his pocket by supplying himself.

The characteristic feature of many of the gardens is the carnations along the edges of the path and beds; in bloom they fill the air all about with their aromatic scent. Later on it is the lavender border, its erect, light-blue flowers alive with white and many-coloured butterflies.

To people in sedentary employment the colony garden means a particularly welcome recreation, and as a consequence, many other members of the community besides manual workers take advantage of it, office people, lawyers, newspaper men, teachers, physicians. To many families who for generations have been associated with tilling the land, but whom fate has destined to be townspeople, without direct access to the soil, the colony garden is a boon. Even if the little summer-house is only very sketchy in its furnishings — though decorative and practical — the family can “camp out” very comfortably during the light, warm nights of mid-summer. In these times of great cities, the colony garden movement creates a connecting link which makes these families feel themselves in pact with their earlier life. In their lives and doings the colony-garden folks are therefore an expression, more true than many other sections of society, of the people of Denmark with their loyalty to the past, quiet and reflective, and devoted to their children and the young generally. Will the young appreciate these little gardens just as much, or will sport, technics or some other sphere of interest overshadow their simple joys and diversions?

The number of colony gardens in Copenhagen and environs is about 16,000, in the rest of the country about 50,000. Half of the land in Copenhagen and district is rented from the City Corporation; in 1000 gardens it is State land, while the remainder are on private land. The average size of the gardens round about the capital is about 300 sq. metres, but about 700 sq. metres elsewhere; the annual rent is 6 øre and 3.5 øre per sq. metre respectively. The Union of Danish Garden Societies is a similar institution, with 79 societies and 26,000 members.

## CYCLING

On a placard issued to advertise the city of Copenhagen, showing a street scene on a summer day in one of the busiest thoroughfares, with the tower of the Town Hall in the background, dense streams of cyclists are shown spread out over the entire roadway. A foreigner who saw the picture, but did not know the town, exclaimed "But surely that is not the ordinary street-traffic, it must be a show". He was then told that the picture represented the youth of Copenhagen on its way home from work — many of them perhaps also on their way out to recreation, out to forest and beach, to swim or row. This familiar street scene has undoubtedly made many strangers stand and wonder when in Copenhagen. Cycling in Denmark is talked about everywhere in the world. It is said that there is more cycling here than anywhere else, even if Holland and Japan are contesting Denmark's right to pride of place.

Traffic censuses taken at two busy bridges show that in one day 55,300 and 56,467 cyclists pass, as compared with 12,016 and 19,919 units of all other forms of traffic. For every pedestrian there are 3 and 4 cyclists crossing these bridges. It is said that among the 900,000 people in the capital there are 400,000 cyclists. In the whole of Denmark there are 1,250,000 bicycles in use every day. For sport, track and road-racing there are about 3000. A bicycle for ordinary use is computed to run between 7000 and 8000 km. a year, which means an outlay of 35 to 40 kr., or  $\frac{1}{2}$  øre per km., for its owner; by rail it costs about 5 øre per km. to travel in Denmark. The bicycle industry employs about 25000 to 30000 hands.

| Denmark's physiographical nature, without mountains and steep ascents, with nothing but hills and dales, or with expansive plains in fertile countryside, makes it a country very suitable for cycling, even if at times there is a stiff breeze that calls for energetic pedalling. It may be that as a means of conveyance the bicycle suits the Danish mentality particularly well; a gliding, smiling stream of cyclists involuntarily calls to mind a line by a Danish poet, "A steady and active life on earth". If cycling may be called a sport — and why not? — it is beyond comparison the national sport of the

Danish nation; of 3.7 million people, 1.25 millions go in for it daily. Everybody rides a bicycle, from the six-year old child to people well past the "allotted span". The story is told of a well-known professor of 86 (now dead) who always used his bicycle, even when going to dine with H. M. the King.

Cycling in Denmark goes back to about 1889, when Dunlop in England invented his pneumatic tyre and created the practical bicycle, replacing for ever the old "pennyfarthing", numbers of which had been seen on the Danish roads. As in England, the home of cycling, the first bicycles in Denmark were used for racing. The first road-race in this country was held in 1891. For many years the Danish Bicycle Club arranged the famous event Copenhagen to Esbjerg and back. The first world's championship on a track was held in 1896 at Ordrup near Copenhagen. Thorvald Ellegaard is the best-known Danish track racer of all time, though the track heroes of today hold the Danish colours high.

It is everyday cycling, however, that is the chief interest in Denmark. The Danish Cyclist Union, founded in 1905, has been a good friend and advocate of all practical progress capable of safeguarding the rights of the cyclist in the traffic: cycling paths, right of way, brakes, rear reflectors, parking places, etc. The activities of the Union internally are pedagogic where proposals and hints are concerned for "cycling through Denmark". It helps to arrange long trips abroad, where in many places it is necessary to have identity cards to cross the frontier with a machine; to Denmark, however, the stranger comes in with his bicycle without formalities.

Cycling has meant the growth of solid, democratic comradeship among the young, and also between the two sexes, who ride out together into nature. To many clubs the bicycle is indispensable, as for instance the Boy Scout organization, whose main object is to gather its members for rambles into the country.

The bicycle sets its stamp on the street scene, also when it is not running. Apart from the fourteen parking places in Copenhagen specially intended for cyclists, the bicycle-stands placed along the house walls, at the railway stations, banks, hospitals, schools, trade-union offices, work-places, etc. etc., must also be counted in. Traffic in the streets is given its own physiognomy



by the innumerable messenger bicycles, including those of the postmen. Errand-boys, when their carriers are insufficient, often push tricycles capable of accommodating as much as a flat-cart. The bicycle, however, has helped to revolutionize the entire town in another and much deeper way. The centre is being depopulated; people are moving to the outskirts. No less than one-twelfth of the town's entire population has taken part in this migration in recent years. As a curious point it may be stated that two well-known thoroughfares, Nygade and Østergade, have a total resident population of one and fifty respectively. Provincial towns reflect conditions in the capital, with the crowds of cyclists moving to and from the city morning and evening.

The Danish cyclist knows his traffic rules. It happens sometimes that he is involved in an accident, and to avoid this, and to prevent any possible increase in the number of accidents, the police are considering a scheme, one that has the support of the Danish Cyclists Union, of registering all bicycles: registration would cost 1 kr., which would also pay the premium of a third-party insurance. In connection with the annual return of traffic accidents the Copenhagen police authorities said that "Cyclists are inclined to spread out over the roadway in several rows, sometimes with small dangerous turns towards the middle, regardless of the traffic coming from behind." A well-known Danish member of parliament and party-leader, who rides his bicycle a great deal every day throughout the year, frequently in the busiest streets, and who says of himself that he rides very fast, says that in his experience "the cyclists of Copenhagen ride well, on the whole, but they should cultivate the habit of giving signals with the hand more than they do." And in conclusion, some remarks by one of Denmark's oldest cyclists, the nutrition expert Dr. Mikkel Hindhede, who in the course of a public discussion in the press in 1935 said, "I love my bicycle, first and foremost because it gives me splendid exercise." He added that he had been a cyclist for 51 years, having begun on a "penny-farthing" in 1884. With his 73 years he still takes a long ride every day; gymnastics and other indoor exercises have no attractions for him; he wants to get out on his bicycle and work in his colony garden.

## SWIMMING AND BATHING

Every New Year's Day, no matter what the weather, the people of Copenhagen go to see a winter sport that is unique in character; the swimming club "The Vikings" uses that one day in the year to hold its winter swimming gala; it always takes place in Hellerup yacht-harbour just north of Copenhagen. Thanks to the unselfish objects of this event it has now become quite a tradition, for the gate-money goes towards distributing clothing and other necessities to needy families and children. The total sum collected for this purpose every year by what is now called "The Cold Shiver" is an imposing one, and the events in which the members of the club — both ladies and gentlemen — take part include 40 metres crawl, 40 metres breast-stroke, life-saving race fully dressed, and free swimming. The competitors are of all ages, from children up to veterans of 70 or 80. Naturally the winter swimming clubs along the Danish coasts have not many members, but the number is growing from year to year. In Copenhagen and Aarhus the membership is already up over three figures, and the clubs furnish evidence of the achievements of present-day Vikings in more peaceful spheres than of yore.

The picture of open-air bathing in summer is the best illustration of what splendid facilities the Danish people have for the daily dip. There is bathing everywhere, along the coast, up rivers and in lakes, not to speak of the open-air pools, which are growing in number everywhere, especially inland. Denmark's 7000 kilometres of sandy coasts, fringed with sand dunes on the west coast of Jutland, form natural bathing beaches everywhere, except where navigation or the like creates obstacles. Holiday-makers go to the seaports as well as to the 236 bathing-beaches, whose position is marked by the many seaside hotels and boarding-houses, private undertakings all of them. Where nature has been less generous in providing sufficiently wide sand beaches, artificial ones are made by pumping sand up from the sea bottom. The best-known artificial beach is that at Bellevue, Klampenborg, north of Copenhagen. On a hot day the number of people there can run into tens of thousands. The author Johannes V. Jensen is right in saying that "All Denmark bathes." "It has become a national

craving to bathe", he says. "It is greater than the discovery of America to have discovered the life beautiful. A day in nature by the sea; the light, the air, the refreshing water; these make the new world."

Every week-end in summer the shore south and north of Copenhagen becomes draped in white. White tents are pitched from Køge on the south to Isefjord on the north. Bathing goes on from the open shore. In the course of time many Danes have tried their strength at long-distance swimming across belts and sounds, a sport that is no whit less strenuous than the achievements of energetic sons and daughters of Neptune from Dover to Calais.

It is possible that swimming has been rather slow in becoming a present-day sport in Denmark; in that respect it has shared the fate of walking and running, two branches of athletics that are most natural to Danes having regard to the prevailing type of terrain in Denmark. The feats of the ancient Norsemen as athletes comprised just these three branches which nowadays are becoming such favourites.

The object of the "Danish Swimming and Life-saving Union" is to assist and encourage swimming and to spread a knowledge of life-saving over the whole country. In the Union there are 84 clubs. Everything possible is done to instruct the members in the art of life-saving, by means of lectures with demonstrations, as well as with the use of the film. The Danish method of life-saving was invented by Lt. Col. Holger Nielsen, and its simplified rules for artificial respiration are far in advance of former world-renowned methods; it has been unanimously recommended by a committee of scientists, medical men and other experts. At places where crowds assemble in summer time to bathe or row the Danish Red Cross Society has installed "life-saving stations"; the material supplied to them has been very carefully selected and thoroughly tested and has proved to be equal to all requirements. Instruction and assistance do not stop at this, however; warnings on the spot direct bathers not to go into the water when dangerous currents are set up after flood tides, etc.

Swimming in Denmark is not confined to the beaches or other open-air places. Strange as it may sound in a country of beaches and swimmers, as a sport, with races, champion-

ships, inter-Scandinavian and international meetings, etc., it is pursued indoors, in the swimming halls.

That is where records are broken; there the selections are made for participation in the Olympic Games. Ollerup School of Gymnastics built the first plunge-bath in Denmark, and it is still playing a most important part in swimming and life-saving instruction. In that Funen hall, however, there are never any races, nothing but instruction and practice. The competitive events are associated with the three swimming-halls, Copenhagen, Frederiksberg and Aarhus, whose basins and other equipment are dimensioned for the international record distances, and there is room for spectators. Thanks to a staff of efficient instructors and a crowd of energetic youth, especially ladies, Denmark holds a fine place among record-holders; at the Olympic Games in Berlin in 1936 two medals were won by young Danish women; one was the thirteen year-old schoolgirl Inge Sørensen.

But though the swimming halls provide the best of conditions for galas, their importance as a means of recreation must of course be placed much higher. In all probability the purely sporting element, and the pleasure derived from it, for example mixed bathing, is particularly attractive to the young, with the result that by that very means cleanliness becomes a habit. (It might be mentioned here that in the three communes of the capital city, Copenhagen, Frederiksberg and Gentofte, the average quantity of water used domestically per inhabitant per day is 173, 178 and 175 litres respectively.) It has been established that more than half of all those frequenting the public establishments which provide several other kinds of baths than the plungebath, make use of the latter. The annual number of people frequenting the establishments in the capital, counting all the baths, is close on a million. The method of purifying the water in Danish swimming halls, of which several in the provinces are filled direct from the sea, is in no way inferior to that used abroad; the future may bring new methods, but the daily inspection ensures that the water in the basins everywhere satisfies the requirements of hygiene. There is one more advantage: that the intention is to have the buildings of public baths furnished with rooms for gymnastics and with accommodation on the roof for sun bathing in summer.

The existence of the swimming halls has put new life into the propaganda for forms of bathing such as steam-baths. The suggestion has been made that these should be introduced all over the country, using the dairies as public bathing establishments. Danish dairies, which are the cleanest of the clean, have already put in one or more bathrooms for their staffs, and the suggestion is that these advantages should be utilized for the population at large. This opens up a prospect of a national hygiene movement of the very greatest importance, for the dairies are fairly equally distributed over the whole country. It has been proposed that the school children should begin with one bath a week at the local dairy, so that they should become accustomed to regular bathing from their early years.

Swimming for the very young has already been hinted at when mention was made of that clever little Olympia medal-winner. It has been included in the curriculum of the Danish elementary school since its statutory inception in 1814. School swimming has its natural object in teaching as many scholars as possible to swim, so that in later life they may get both pleasure and benefit from it. There are five open-air bathing establishments in Copenhagen, and the number of school bathers in 1936 was about half a million; of that total 113,565 were obligatory attendances, the remainder free, voluntary bathing outside of school hours. During the summer holidays the baths are the daily place of assembly of many children who do not go away, and so, while learning to swim, they have an opportunity of happy intercourse with their schoolmates and enjoying the health-giving properties of sun, air and water.

## YACHTING, ROWING AND CAMPING

Swimming and bathing are closely connected with certain other forms of sport such as rowing and yachting. Danes are born with a longing for the sea. Fashion sometimes dictates. Pleasure cruises from Copenhagen up the Sound are more popular now than ever. Every half hour throughout the summer months splendidly equipped boats leave with a full complement of light-hearted passengers for the Danish Riviera,

and between Sealand and Sweden the number of passengers in the season comes up to a million. The yachtsman in his little craft explores the fjords and sounds, coves and belts and finds fellow-navigators everywhere. At many towns by the coast there are fine yacht-harbours, or at any rate good berths at the quay. There are fifty yacht clubs. Seen from the sea the Danish coasts have their own enchantment; this is true of the daytime in the full light of the sun, and also of the long light summer evenings, when the gently swelling surface of the water reflects the gleam of the "light nights" which give Denmark the name of "the twilight land". On such days the sea is like steel, or its colour recalls "Copenhagen porcelain", as a foreigner once aptly put it.

The Danish shores and "the seas about Denmark" have inspired many artists of the brush, the pen, and the bow. The same coastal stretches which exercise their power of attraction on both strangers and the country's own children in summer, provide wonderful skating rinks on the lakes and smooth-covered fjords for ice-yachting in winter.

The old saying that Danes take to the water as their familiar element is particularly applicable to the rowers. The Danish Rowing Association, which was formed as the first club for one special sport in Denmark, celebrates its fiftieth anniversary in 1937. Rowing in Denmark is on a high level (the Olympic Games in 1936 brought a silver medal to Denmark). It may be said generally that wherever there is water in Denmark, there is also a rowing club. The national association has over eighty clubs affiliated to it. In many places membership has to be restricted because of the lack of boat-houses. All along the coasts and between the islands there are rowers. A bracing pull along the shore is usually followed by a landing on the beach and lunch in a meadow. The Danish rowing boat is an excellent craft for the purpose, light, comfortable, a good seaboat and with room for quite a load of gear. The natural beauty of this sea-girt land, the beech-woods extending down to the shore, all that which attracts the foreign tourist here, is the daily experience of the Danish oarsman, in addition to which he has the tremendous physical advantage of filling his lungs with dustless sea air, and he uses every muscle of his body from ankle to neck.

Often the Danish breeze will force the rower to keep close in to the shore; but his fellow-sportsmen of the canoe and kayak have still more reason for keeping their weather eye open. These lighter forms of craft are as if meant to be the national favourite. They are easy to store away and to manoeuvre. Here again the difficulty is to get a club-house; in the port of Copenhagen for example, it is said to be impossible to secure any more space for the purpose. The Kayak Association has 32 clubs and is a member of the Danish Athletic Association. Bathing, aquatic sports and camping are frequently combined. The rapid growth of camp-life in recent years is mainly a result of the people's craving and longing to be by the sea. Since the Boy Scout movement became so popular in 1910, with camping as part of its programme, camp-life has spread in the form of an open-air cult, though Denmark's capricious climate is often rather trying to its devotees. In summer the woods and shores in many places are bordered with tents. There are over a hundred clubs in "The Camping Club of Denmark". Half of the camping grounds are municipal, but pitching a tent is allowed everywhere on application to the land-owner, except that permanent camps are not permitted on the dunes (Row I) along the West Coast. Naturally the authorities have had an eye to hygiene under this growing popularity of camping, and the Public Health Act of 1933 has a paragraph on the subject. Local health authorities are empowered to draw up camp bye-laws, and it may be said that Danish camps deserve full recognition for the hygienic standard they maintain.

## GYMNASTICS

Denmark had already become a home of gymnastics at the beginning of the nineteenth century. Right down to the village school the Royal Ordinance of 1814 required that scholars were to be shown how to do gymnastic exercises "such as running, jumping, climbing and swimming exercises". Guts Muth, the pioneer of physical culture in Germany, in 1793 had dedicated to the Danish Crown Prince, afterwards King Frederik the VI, the original edition of his work "Gymnastik für die Jugend". Immediately afterwards Fr. Nachteggall, the

first Danish gymnastic expert, commenced on the foundation of a system of physical exercises; P. H. Ling, the later Swedish gymnastic pedagogue, who was studying in Copenhagen at the time, became acquainted with his work and no doubt it had some influence on the building up of the famous Ling's System.

The great name in Danish gymnastics today is Niels Bukh; in fact his is a world-wide name, for numbers of foreigners come to his High School of Gymnastics, while he himself and his splendid team again and again receive invitations to give exhibitions and instruction in other countries. Let the world press characterize Niels Bukh's gymnastics, for example from Toronto in Canada, after an exhibition there in 1932. "Many people received an entirely new idea of gymnastics. There was no impression of strict attention as in other gymnastics, but rather of care-free ease. Just as among the ancient Greeks there was an intimate connection between music and physical exercises, the Danish gymnasts sang or hummed folk songs. What grace and dexterity, strength and control was there not about their movements. Young women clad in light, pale-blue costumes performed elegant balance movements and high jumps like horses in a steeplechase, throwing smiles here and there the while. Young men, muscular and supple, walked on their hands, turned somersaults and made flying leaps at astonishing speed, jumping higher and higher into the air and displaying dauntless courage. The evening began with the entry march of the team, a Danish song was sung, and the red-and-white flag was saluted. The exhibition closed in the same manner, to the deafening applause of the spectators. It took place under the auspices of the University of Toronto." The writer added that the spectators realised that the exhibition was not that of a flock of acrobats, but a team of gymnasts who were travelling about the world to show how Niels Bukh considers physical exercises ought to be practised, in order to bring its disciples quickly and surely towards the aim of physical culture, as expressed by Bukh in his book on "Primitive Gymnastics": "Erect and handsome young people, with ability and strength at their command, and with the will and energy to control and use them in the service of doing good."

On the subject of the advance made towards the world youth movement which Niels Bukh has called to life, he has



given the following particulars for inclusion in this article: "My school, which I founded in 1920, has trained about 5000 female and 4000 male leaders in courses of three and five months respectively. In addition, since 1925 there has been a six week's course every second year for American female teachers of gymnastics (thirty at each course), three courses for German teachers of both sexes, and three for British school people, two to three weeks each and comprising fifty to sixty people. Every August there is a course of two or three weeks for Danish teachers, 200 at each course. All round the world, and across it, I have given exhibitions and short courses by invitation. At four Olympic Games I and my gymnastics have represented Denmark with teams. I shall be taking exhibition teams to England and Sweden early in 1937, both trips by invitation."

Niels Bukh's success, which he sketches above with a few brief words and figures, is as comprehensible as it is natural. It is the victory of the times. Great numbers of the youth of the 20th century desire nothing more than a trained physique and a hardened body. Women as well as men desire the suppleness which movement-gymnastics give them, and in addition the gymnast acquires complete control over his body. On the title-page of "Primitive Gymnastics", which was first published in 1922 and has since been translated into eleven languages, Niels Bukh reproduced the picture of a young man standing with his arms stretched above his head, holding a spade. The interpretation is that labour is play to him; at any rate, the author of the book most decidedly holds that the best gymnast also does the best work. He wants a good bearing to be the goal of gymnastics, or: Men and women, the whole nation, of good physique. He wants spiritual happiness as well as physical welfare; part of the instruction at the High School is in subjects of general culture.

Ollerup High School of Gymnastics stands in most beautiful natural surroundings on fertile, idyllic Funen, the island that gave birth to Hans Andersen. On its hill the school building is in good style; there are sports grounds, gymnasium, swimming hall and open-air swimming pool. In the park and grounds are statues of splendid human bodies. The spirit of good sportsmanship prevails everywhere. All day long throughout

the whole year the young people vie with one another in yielding of their best in gymnastics and on the sports field. The master and his watchful assistants follow the movements of the men and maids during the exercises till they approach perfection. Where all work together, results are not long in coming. In Danish high-school circles, where Bukh found his first adherents, there has always been the right understanding of true team play. For these circles Bukh founded the school about whose task he says in its programme that it is to "train leaders in the development and training of the growing young, as it goes on through gymnastics and athletics in the voluntary club work and the voluntary forms of education in our country."

It has been said that Bukh and his gymnasts have had to travel again and again. He has been right over to Japan, reaping honour and praise for Danish enterprise. For his part Bukh speaks with joy and recognition of the impulses he has received from the outside, for example from Hebert, the French naval officer and gymnastic teacher, as he also points out that the first foundation of his system was Ling's methods. What Danish Niels-Bukh youth thinks about the importance of gymnastics is best seen from a report published by one of the team that went to Japan in 1932. No long quotation is necessary, simply this: "The exhibitions were given during the hottest hours of the day. But there is something strangely refreshing in working yourself warm all through. You bend and twist and feel no resistance anywhere, neither in joints nor in muscles. Your blood runs quickly through the veins and puts you in splendid spirits."

When young people anxious to exercise their strength applaud the system in that way, it will be understood that its creator stands as youth's leader, whom they are ready to follow "round the world as well as in the work there at the high school", where the open-air swimming pool and much more were built by the personal labours of the young men themselves.

After the round-the-world trip in 1932 it was the representatives of Young Denmark who assembled to give Bukh and his team a welcome home. On behalf of the many thousands who in their leisure hours go in for Bukh's health-giving gymnastics in clubs, the chairman of "The Danish Gymnastic

Association" welcomed them at the gangway at Esbjerg. At a subsequent exhibition in Copenhagen they were greeted by the chairman of the "Danish Rifle, Gymnastic and Athletic Association". Parliament and the Danish Government also invited Bukh and his Japan team to give an exhibition at Christiansborg. In the course of only a few years he has succeeded in making gymnastics a national cause — without resigning any of his ideals. On the contrary. The principles of his system are rigidly adhered to, even where the special requirements of athletics are concerned. "The most cultivated gymnast will have the best chances of becoming the best athlete." If the requirements of athletics do not conform, "there must be something wrong with them, and they must be made over". The special muscles of a wrestler or a track-racer do not suffice for a Niels Bukh; we want the harmonious physique; men and women of good build.

Niels Bukh's work, and the great success he has won, do not entirely cover the wide field of Danish spare-time gymnastics, however. The Danish Gymnastic Union, which has 36,000 members in 75 clubs under the Danish Athletic Association, is a competition organization for both team and individual gymnastics. Great work for gymnastics as a form of spare-time exercise based on independent effort is associated with the names of Paul Petersen, Mrs. Agnete Bertram and H. G. Juncker, the latter two solely for women's gymnastics. Gymnastics has long been a University subject. There may be reason for referring to an interchange and collaboration with Great Britain in the domain of physical exercises. Denmark has received several ball games from over the North Sea, a transplantation which has in all essentials taken place direct. In the course of time there has been another form of interchange, for Great Britain has received a good deal of gymnastic impulse from Denmark. British school people have made Denmark a special field of study in this respect for over thirty years. With this training of teachers in Denmark followed the export of Danish gymnastic appliances to England, for which the firm of Niels Larsen started a factory in Leeds.

The renaissance of gymnastics in Denmark as from the latter part of the 19th century was due to Ling's system, which was adapted to Danish conditions. At the same time there developed

a special system for women, and indeed one for children. The founder of children's gymnastics was the physician Frode Sadolin, and it has since been developed by the outstanding instructors associated with the State High School of Gymnastics and by the large number of pupils who in time have had their training there. Demonstrations of children's gymnastics in various parts of the country, gymnastic meetings, mass displays on festive occasions — for example on anniversary days in the history of gymnastics — and the school-children's annual "Sports Day", all create a fertile foundation for the young later in life to work on a "subject" that comes natural to them. The work done by the splendid staff of instructors at the schools is supplemented by the physical culture sections of many clubs; these are festive lessons for the rising generation, lessons that help to shape their lives, inculcate good habits for physical culture which they do not allow to drop afterwards. Everything must be attractive to the child: the clean, airy gymnasium, the splendid sports ground, the light sports clothing, and the bath that concludes the exercises.

In conclusion, mention should be made of "The Society for the Promotion of Folk Dancing". At about the end of last century when this society was formed, interest has been created in the dances which were still popular in many places at harvest time and on other rural occasions, but in the towns had been superseded by round dances of all kinds. The society now has 37 branches everywhere in Denmark. The object was to get the old dances properly recorded before they were lost in oblivion, and then to start courses for the purpose of training dancers to perform them correctly. Of the thousand dances found in various parts of the country, 175 of the best and most original have been printed for instructional purposes; they include chain dances, song dances, agility dances and pantomime dances, round dances for couples, and group dances. In the course of collecting these records great work was also done in obtaining models of the old costumes. The dancers themselves are recruited mainly from the high-school and gymnastic clubs, which ensures the maintenance of a high standard. "The folk dance as a sport" is the watchword of

the society, and the correct performance of the dances really calls for genuine effort. The enthusiasm displayed in the work of learning the dances is evidenced by the example of a Sealand Rifle, Gymnastic and Sports Club, which every year holds an open-air and woodland festival. When the programme is being compiled for the winter season the members are advised as to what dances are to be performed at the following summer festival — for then the members can practice them at the weekly gymnastic evenings throughout the winter. Interest in the old folk dances is now so great in South Jutland that scarcely anything else is danced nowadays at the various gatherings and festivals.

## ATHLETICS

Various forms of athletics have already been discussed in the foregoing. The practical, real explanation of the steady growth of athletic life is comprised in the word "hobby" — in Denmark as elsewhere. People go in for it because it interests and amuses them, and because they have the time to spare for it. Considerations of health are the motives which move others. When everybody feels so secure socially, athletic pastimes have every chance of living up to their idea: that of being a source of recreation for all.

The question may be asked: What about suitable recreation grounds? The answer to that is that practically all Denmark is one large recreation ground. A total of 3,313,633 hectares lie as farm land, studded with 205,971 farms and small agricultural homes. All the year round every single field offers its owner and his guests access to fresh air and wide views. Bordering on the fields are 347,570 hectares of woodlands (85,427 ha. of State forests, 10,943 ha. belonging to the local communes, 251,201 ha. in private ownership). Fresh-water lakes, ponds and watercourses occupy 61,223 ha. and invite the angler and oarsman. Over 300,000 ha. of moors attract the active "when the heather blooms". The recreation areas of the three communes forming the capital are distributed as follows;

	Total area	Parks & Sports Grounds, Playgrounds & School yards	Of which intended for sport and play
Copenhagen..	7,327 ha.	{ About 260 ha. communal, 7 ha. private, and 208 ha. lakes with sailing model boats, row-boats, bird life.	{ About 125 ha. 7 ha. private, 18 ha. playgrounds with sand-boxes, appliances, wading ponds, roller-skating rinks, sledge-tracks, skating rinks.
Frederiksberg	871 ha.	33 ha.	{ 24 ha. 1 ha. play-grounds.
Gentofte . . . .	2,520 ha.	61 ha.	{ 21 ha. 1 ha. play-grounds.

The gardens, woods and similar areas belonging to the State in these three communes total 48.5 ha., 47.5 ha., and 156 ha. respectively, or 252 ha. in all, mainly used for walks, picnics, etc. though about 20 ha. are for athletics and games. (Similar areas around five Crown estates in the provinces total 232 ha.).

The structure of Danish present-day athletics has required time to develop and naturally had commenced long before the year 1896, when the Danish Central Society of Physical Culture was formed. The Danish Athletic Association, its official name, is the recognized highest authority and comprises 1320 clubs with 200,000 members, covering practically every branch of sport and athletics: athletic exercises, boxing, badminton, football, lawn tennis, fencing, golf, gymnastics, handball (National Danish Ball Game of 1906), hockey, kayak-rowing, military sports, equestrian exercises, rowing, rifle-shooting, skating, swimming and life-saving, and winter sports. The Association controls everything in the form of championships, amateur records, the Athletic Badge, challenge cups, athletic games, as well as instruction, whereas outwardly the Association agitates for better conditions for athletics and sport in the form of public sports grounds and the erection of buildings for their use, etc. The Association receives an annual grant from the State to help in its multifarious activities, which also include giving direct support to the clubs. Many towns and many rural areas already have good sports grounds, swimming halls, open-air swimming pools, etc., and their number is increasing rapidly, for the communes receive a consider-

able refund of their outlays from the State through the legislation dealing with the unemployed young. A Bill recently laid before Parliament by the Minister for Education contains provisions for obligatory sports grounds at all large schools in the country.

A typical example of what is done for athletics is the Copenhagen Stadion. It is an institution that has grown out of co-operation between the city and the leaders of athletics in the municipality. The "Idrætsparken", as it is called, was founded in 1911 and is a self-supporting institution, not a club. It does not promote events or meetings. By means of its administration of the sports grounds and their activities and buildings it works to provide athletics with the best of conditions on reasonable terms. It rents out tracks, grounds and buildings. The clubs and the large athletic organizations pay a fixed rent, and the institution places facilities at their disposal. Any financial surplus on this business is employed exclusively in the interests of sport and athletics after consultation with the city corporation.

The Stadion has at various times been presented with sculptures by various institutions and private people for erection in its domains. The swimming hall is furnished almost to the point of luxury in this respect; it has the name of being the most beautiful in Europe. The value of all the sports and athletic areas, which have been leased to the institution for 98 years, does not figure in the accounts, but is to be taken as the city's gift to its young. The accounts include only the buildings, appliances, and other arrangements.

There are more than fifty sports grounds in Denmark, two of them private (at the High School of Gymnastics at Ollerup and at "Skovbakken", Aarhus). Any summary of athletic clubs would also provide the means of calculating the number of areas and premises available. For the present, however, it can scarcely be said that most clubs have access to municipal establishments; they manage by renting areas or laying out their own grounds. The indoor recreation and spare-time pursuits which are looked after by State and communes, are accommodated in the many fine schools or other premises arranged for the purpose, such as gymnastics, home crafts and domestic industries. Of these schools 3891 are

communal, 34 State, and 603 private. At the army's 22 barracks the drill-halls and gymnasiums are very often lent to clubs for badminton, etc. Some towns have built special halls; and there is a private hall at Ollerup. The swimming halls have already been referred to. In the season there are excellent swimming pools at the seaside towns and elsewhere; many of them are communal. The staff of people in State and communal employment at the country's schools, and those at private schools too, are naturally directly interested in recreative work, which in fact forms part of their occupation as regards athletics, physical exercises and open-air life of all kinds. There are 13,825 communal and government teachers, and 2889 private. How many teachers are associated with recreative work — often without remuneration — is unstated.

In Danish athletics the Danish Ball-Games Association has the greatest number of clubs. Quantitatively the place of honour is occupied by the Football Association. The general opinion is that football created the sporting instinct in Denmark, for football came direct from England and with it the good British sporting spirit. Pedestrianism is responsible for Denmark's oldest and finest athletic competitions. Ever since 1896 the "Fortuna Race" has been run on the third Sunday in March in the Dyrehaven, near Klampenborg. It is both a team race and an individual race, and the performances of the very numerous competitors are always watched by large crowds. The work of the schools on athletics leads the young into the open-air life from their early years, for example by giving the scholars the opportunity of cultivating their favourite sport voluntarily, outside of school hours. The girls usually have ball games. The exercises, which are well attended everywhere, are often so arranged that they form a natural link with the plan of instruction laid down for the school. It should also be added that of the large number of clubs and societies of every kind — about 25,000 in all — there are many who give their members, children and adults, access to lessons in gymnastics, physical exercises, etc., even if their statutory objects are quite different.



## OPEN AIR, HOLIDAYS AND TRIPS FOR CHILDREN

Social interests and hygiene are the basis of a number of objects which have a message to the young, all with reference to making fruitful use of the leisure hours, and all non-compulsory. The Scout organizations, which include the Y. M. C. A. and the Y. W. C. A., which altogether comprise 433 troops all over the country, the Boy's Brigade with 124 companies, The Association of Athletics for the Young, 110 branches, all in their own way devote themselves to the children and the young, all for the purpose of developing comradeship while exploring nature in the open.

Another group of interests is, as the names imply, associated with the "Danish Rambler's Gild", the "Hostel Union", trips for children and older ones, and the "School Excursion Homes". The latter were founded in 1924; they provide shelter for children travelling on foot with their teachers on excursions of from nine to fourteen days; there are 35 homes, distributed equally over the country. In 169 Danish youth hostels 106,842 nights were spent by visitors in 1936, including 12,695 from abroad; young Danes spent 25,000 nights in foreign hostels in the same year. Travelling for the young has long enjoyed an international name in Denmark. At "Le congrès international de l'éducation physique à Odense 1911" on a Danish motion a committee was appointed, with a seat in Vienna, to do the preparatory work. Through the support of sympathetic people the character of these journeys is now world-embracing; long distances are nothing uncommon, and there is even an exchange between Danish and American youth. A permanent place is occupied by the school journeys arranged by the Norden Society, with mutual visits of groups of scholars between all the countries of Scandinavia.

One special form of travel with children is the camp school; teachers and scholars spend a week or so together at a conveniently situated camp-hut outside the town. The same applies to the open-air schools, where the sojourn is longer. At both kinds of school, however, the work is done out of doors, even if it does form part of the ordinary school curriculum.

The Copenhagen Communal Teachers' Society's Holiday Col-

onies, and the "Society for Provincial Childrens' Holidays in Copenhagen" are two outstanding institutions. Since the Cholera Year of 1853, hospitable farmers all over the country have invited small Copenhagen children to spend their holidays with them. In 1899 the school teachers of Copenhagen found a means of getting still more children into the country, for they started Holiday Colonies. Since then this work has grown considerably, and in 1937 the numbers to be sent out will be 3200 boys for over 81,000 days, in addition to a large number of children in colonies for the weakly ones. The number of girls will be about 800, for 22,000 days. All in all about 200,000 days will be spent, at a cost of about 500,000 kr. Thanks to the Copenhagen press, which collects contributions, and the assistance given especially by the Corporation of Copenhagen, the teachers' organizations have been able to arrange these colonies year after year. And in the various parts of the country where the colonies are the local people display very warm-hearted sympathy, and often make gifts in kind to help the commissariat. Physicians in the provinces readily help with attendance free of charge if sickness should occur in the colonies. As a rule a child's holiday extends over three weeks, and it is quite gratis. The holiday places, which are owned by the societies themselves or they are rented or lent, are at the seaside so that the children are close to the bathing beaches, which are also their playgrounds. Each group is in charge of two teachers and the day is occupied with meals, prepared by the colony housekeeper, playing ball and other games, bathing, walks to places round about, and resting. At 8 a.m. a signal sounds; all form up at the flag-staff, and the flag is run up while everybody sings the Song of the Morning. That begins the day, and the first meal, of porridge and milk, comes along immediately. A good appetite and high spirits have their visible result when the pointer on the weighing-machine moves much farther over on the day of departure than on the day of arrival at the colony. On returning to school the increase in weight is recorded on the school doctor's calendar. He watches the weight and growth of the children, and notifies the homes if he notices anything wrong. The questions of nutrition and hygienic care and attention are just as important in the Danish school of today as the instruc-

tion, and it is here that the holiday colonies have their great importance. In 1930 the Teachers' Society acquired an entire small island for a holiday colony, "The Children's Island" Thorø, off the town of Assens, with accommodation for about 300 boys at one time. Now that years have passed since this movement started, it might almost be said to be natural that the teachers' societies took it up. Teacher and scholars live part of their lives together every day, very intimately, and any good family is only too pleased to give a helping hand where it is needed. Several Danish provincial towns have also started colony holidays for children. Holiday homes among the farmers for Copenhagen children have already been mentioned, and this work, too, is organized by the teachers; last summer 3500 children spent their summer holiday in the country, the total of days being about 200,000. Often the same child returns to the same farmer's family year after year, and is later followed by a younger brother or sister. Many friendships have been formed in this way between town and country, and they have helped to make the social conflicts in Denmark milder in character than in many other countries.

Sometimes children wishing to go to a holiday colony or to spend the holidays with relations, friends or others, have difficulty with their outfit. In such cases the "Children's Bureau" gives a helping hand. In the twenty-three years since the Bureau was started 130,000 children have been assisted.

Of Copenhagen's 62,000 school children about half succeed in getting a holiday in the country. The State Railways grant free journeys for them, though the City has to pay 10 per cent. of the fares; this condition applies to all children in Denmark under similar circumstances. The private railways and steamship companies also give a big reduction.

The Society for Provincial Children's Holidays in Copenhagen last year helped 25,000 provincial school children to get to Copenhagen, either by giving them a free pass — a privilege for which a school can apply every three years — or securing greatly reduced charges for board and lodging. This society, which was formed in 1895 after a more private enterprise has preceded it, helps and guides provincial children coming in schools to the capital for one or several days, pro-

vides them with free accommodation for the night in large dormitories, takes them about under expert guidance and according to a regular plan, showing them the things to see in the city and providing them, either free or for a low charge, with food. Every effort is made to strengthen the good relations between town and country. Quarters are usually found in gymnasiums, lent by the City of Copenhagen for the season, from May to September. In the busy season up to 1500 children are housed every night. The system of arranging these visits to the capital, a form of school journey which began first in Denmark, has been studied on the spot by many school people from other countries. In 1936 the society enlarged its accommodation with a hostel-ship, an old frigate named "Jylland", which, fitted out specially for the purpose, now lies alongside the quay not far from Raadhuspladsen, the centre of the town. In the provinces as in the capital The Society for Games of Danish School-Children brings the children together for games. In the capital holiday excursions are arranged to the seaside. During the past few years the city corporation has established holiday sports centres at fourteen athletic grounds, where teachers lead the exercises and ball games. All these measures are free of charge to the children, as also admission to the public playgrounds. The latter are especially frequented by children not yet old enough to go to school. At all towns there are good sand-playgrounds, where the games material is frequently renewed, for most of the towns can easily obtain fresh clean sand from the beach. In its circular of 14th May 1935 and in several previous circulars the Danish Home Office, addressing the country's 1400 communes, underlined the necessity of arranging playgrounds for the children in their free time, to which they can resort all the year round, thus keeping them away from the traffic and dangers of streets and roads. The Ministry also made suggestions for the financial dispositions necessary for carrying out the scheme.

## CONCLUSION

There are many forms of recreation that have not been mentioned at all in this accounts, for instance many indoor hobbies, music, singing, library borrowing, and all intellectual

occupations which take up so many people's spare time. In "The Athens of the North", as kind foreigners like to call Denmark's capital, as well as in Denmark as a whole, the people have the name of being very well informed and well read. Developments in many of these fields, however, are very international, though at the same time it must be said that in the various countries new working methods and varying opinions often appear which may be of general and common interest. It was in fact having regard to this latter circumstance that in 1932 a world movement was started for spare time and recreation, and it has already demonstrated its vigour by holding two international congresses, with a large attendance from fifty countries; the first was at Los Angeles in 1932 and the second at Hamburg in 1936. In the very appearance of that world movement is a call to the individual countries to outline their own efforts in the said direction, such as has been attempted in the above concerning Denmark.

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III.





# CONTROL OF EXPORT OF AGRICULTURAL PRODUCE

BY

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In the course of a number of years, and mostly in recent times, a fairly long series of Laws and Regulations has been issued concerning the control of the exports of the chief Danish agricultural produce, including live stock. This is quite natural, considering the very great importance of these exports in the economy of the country and the necessity of keeping the quality of the produce as high as possible for the sake of the competition with similar produce from other countries. It is characteristic of this legislation that the initiative in the different measures was taken sometimes by the administration, generally the Ministry of Agriculture, sometimes with and sometimes contrary to the wishes of the farmers or the industry, and at other times by the farmers, the agricultural societies or the agricultural industry, either the dairy societies or the bacon factories. There has been a certain amount of mutual cooperation, which in several cases meant that the farmers or the industry endeavoured to carry through a certain measure by voluntary action but failed to persuade the last remnant to fall in, and therefore applied to the Minister to make the measure compulsory by legislation. In other cases voluntary action by the farmers or the industry had succeeded in carrying through a certain measure to such an extent that the Minister, seeing the advantage of the measure, introduced legislation to make it compulsory also for the last remnant. Examples of such cases will be given in the following.

As is generally known, a certain mark or brand, the so-called "Lur" Brand, was chosen as a national mark on Danish agri-

cultural produce. The Lurs are like curved coach horns, cast in bronze in olden time, in the Bronze Age, and found in peat deposits in Denmark in pairs, two and two of the same pitch, so beautifully made and so wonderfully preserved that some of them can still be played upon. Danish butter and Danish bacon marked with the Lurs now peacefully enter



those countries on which the Danish warriors, Vikings, made their raids. It is therefore in a way symbolical that the Lurs have been chosen as a national mark on exported Danish agricultural produce.

The way in which this mark was chosen and adopted by the legislature is in several respects remarkable. When the importance of the exports of Danish butter to the economy of the country was realised, a general feeling gradually grew up among farmers that a common mark, to distinguish Danish butter from that of other countries, would be of great advantage to the sale of their butter in the English markets, and there was a desire that the State should establish some kind of

"national" mark. Six members brought in a Bill in the Rigsdag to that effect in 1891, but the Government turned it down, as they considered the description "Danish Produce" offered all the legal protection required and all that a special mark could secure. At the time a certain quantity of Swedish and Russian butter was imported into Denmark, of which a part was re-exported to England in a manner which made it doubtful whether English importers, receiving this butter from Denmark, were always aware of its true nationality. However legitimate this trade might be, it was felt by Danish butter producers to be contrary to their interests, and the desire for a "national" mark grew among them. The Royal Agricultural Society of Denmark in 1896 appointed a committee which, however, failed to arrive at any proposal, some of the members supporting the view of the Government, while others, being peasant farmers, were strongly in favour of "a mark". But there was a considerable vagueness about what kind of mark was required, "national", "official State mark", "quality mark" and so on. And there was a considerable lack of knowledge as to the legal value of such marks. When a new committee was appointed by the Royal Agricultural Society of Denmark it was therefore important that the Controller of trade Marks was made a member, so that he could supply the highly desirable technical knowledge. The result of the deliberations of this committee was a report in which was indicated a means, then authorised by the Ministry of the Interior, by which a common mark could be registered, thereby obtaining legal value, and be used by all the dairy organizations who would join in a society for that purpose. No sooner was this understood by the dairy farmers than it



was acted upon with such zeal, that within a short time all but 13 of the 1328 dairy societies had been enrolled in the Danish Dairies Butter Mark Society, and a mark: the "Lur" Brand, with the words Danish Butter, was registered.

In the course of some years a considerable part of the Danish butter exported was packed in casks that bore this mark.

The interesting feature in this development is very remarkable, and what Danish farmers had accomplished was nothing short of an anticipation of a new development in the legislation on Trade Marks which later on was introduced by the British "Trade Marks Act, 1905" and has since been internationally adopted. It is more than doubtful whether the procedure adopted by the Danish Dairies Butter Mark Society was legally tenable. But by Sec. 62 of the said British Act a new principle was introduced by legalising "Standardisation of Trade Marks". A society who undertakes to examine certain goods as to their origin, quality and so on and to notify the result of their examination by means of a mark on the goods, can obtain the permission of the Board of Trade to have the mark registered as a Trade Mark, whether the Society is or is not trading or has an economic goodwill in connection with the said examination and marking. But that was exactly what the Danish Dairies Butter Mark Society had done. By their mark they notify, among other things, the Danish origin of the butter. And later on their "Lur" Brand was actually registered by the Board of Trade under the named Section 62.

The Danish Dairies Butter Mark Society was formed in 1900. The idea of having all Danish butter marked with a common mark met with the decided approval of the provision trade in Great Britain, the Cooperative Wholesale Society, one of the largest buyers of Danish butter, being among the first to require that all butter they bought in Denmark should bear the new mark. Danish exporters were in some cases less pleased, and it was soon found that the D.D.B.M.S. would be unable by their own efforts to accomplish what was aimed at, that all Danish butter exported should bear the "Lur" Brand. Therefore the Danish farmers, represented by the Associated Danish Agricultural Societies, the Federation of Danish Dairy Associations, the Butter Mark Society and the Dairy Managers' Society, approached the Minister of Agriculture in December 1903 with a request that it be made compulsory by law for all Danish butter exported to bear the "Lur" Brand. A Bill was prepared and on the 30th of March 1906 an Act received

the Royal assent, under which by a Royal Decree the "Lur" Brand become a compulsory mark for all butter produced in Denmark from pasteurised cream and intended for export.

This history of the "Lur" Brand shows how the initiative was entirely taken by Danish farmers, and mostly by those of the peasant class, while the Government to start with, and many of the larger farmers as well, were opposed to the idea, and how this was carried through and at last reached its practical consummation by the Government, at the request of the farmers, passing a law to give effect to the original idea.

Quite a different picture is presented when we follow the development of the legislation dealing with the control of the export of meat. Here we see the initiative to be totally on the side of the Administration. The industry, chiefly consisting of the bacon factories, owned by the same farmers who created the "Lur" Brand for butter, was to begin with in strong opposition, but eventually it not only realised the benefit of the measures carried—or forced through—by the legislature, but even came to apply to the Ministry to enforce certain measures in which the industry was interested, but which it was unable to get adopted by all the factories.

The first law concerning the control of the export of meat was enacted in 1894 and dealt with fresh meat only. In 1903 a new law dealt with fresh and slightly salted meat. By far the greater part of the exports consisted of bacon, which most certainly was considered slightly salted and meant to be included in the inspection service. But the bacon factories were so strongly opposed to being submitted to veterinary control, which they maintained was quite unnecessary, that it was eventually agreed to consider bacon as "heavily salted" and therefore outside the scope of the law, a decision which was really quite unwarrantable and soon found to be untenable.

There was at a time an export to England of both fresh pig meat, mostly fresh carcasses, chiefly to the London meat market, and of bacon. In 1903 the Medical Officer of Health for the City of London adopted the recommendations of the Royal Commission on Tuberculosis, according to which "the slightest tuberculous deposit, as well as the removal of part of the pleura or peritoneum from carcasses of pigs, were con-

sidered as reasons for the total condemnation of such carcasses. Unfortunately, we were not informed of these innovations. It might be explained that these requirements are beyond what is considered necessary and reasonable in other countries, and even prominent English authorities have pronounced them excessive. But the result was the condemnation of several carcasses in 1903, still more in 1904, and in January 1905 80 carcasses and in February 55 carcasses were condemned in the London meat market. Strong complaints were raised and officially notified to the Danish Agricultural Adviser in England and reported by him to the Danish Minister of Agriculture. There were questions in Parliament, and the London press mentioned the matter in strong language, the complaints also referring to our bacon, which was a far greater article of export than the fresh pork.

When it learnt about the new conditions, the Ministry of Agriculture in Copenhagen took very prompt action, issued a new circular to the veterinary inspectors enforcing the same requirements for all fresh meat of pigs for export to England as adopted in London, and further requiring that no carcasses of rickety pigs should be passed for export to England. This in a very short time caused the condemnation of fresh meat and carcasses of pigs to the London meat market to cease, and the Medical Officer of Health of the City of London officially declared himself quite satisfied with the result.

But a greater danger threatened. In order to understand this it is necessary to explain that while the fresh pork came to the Central Meat Market in the City of London, the bacon came to various parts under different medical authorities who were not quite as strict. And the bacon was under no official control in Denmark as long as it was considered to be "heavily salted". Very serious complaints of much of this bacon were received both from the agents and from the Agricultural Adviser, who in a circular to all bacon factories in Denmark explained the precarious position. In a bale of bacon weighing well over 2 cwts. there should be four, seldom six, sides of bacon of about 60 lbs., but several Danish bacon factories were sending miserable rickety sides of 20 to 30 lbs., sending bales of 12 such sides or bales where sides of 10 lbs. and 20 lbs. were packed together. This was contrary to all commercial

custom, and the rickety, soft and wet sides could not be considered fit for human food.

It was quite necessary that this reckless procedure should be stopped in time and the reputation of our bacon export restored; this, however, required that the Minister of Agriculture should be authorised to take the necessary steps, which at the time he was unable to do as long as the bacon, by far the greater article, was kept outside the scope of the law.

The Central Committee of the Cooperative Bacon Factories and the Minister of Agriculture agreed on a proposal to be laid before the annual general meeting of the Cooperative Factories to be held on the 15th of February. Bacon should be considered to be slightly salted and should be submitted to a uniform control; a law should be enacted establishing a control of all classes of meat, including heavily salted, when intended for export; a control service by veterinary inspectors appointed by the Minister but paid for by the factories would give the necessary security, wherefore the Minister should be asked to introduce legislation for a general control of meat both for export and for home consumption.

Such was the resolution to be laid before the meeting of the delegates of the factories. It has transpired that the managers of the factories were so determined to oppose these or similar proposals that they had decided that not one of them should vote for the resolution.

The Agricultural Adviser in England was called over to the meeting, and he prepared himself for the task by purchasing in the London bacon market a bale of six rickety sides of Danish bacon weighing about 20 lbs. each and having all the characteristic signs of rickets, being besides soft, wet and generally objectionable. When the delegates of the factories, the chairman and the manager from each factory, came to the meeting they saw a long table on which were exposed, on white paper, these sides of bacon of unmistakable character but with no indication of their origin. It is a question whether any of the delegates dared assume that these miserable sides of bacon had not been exported from their factories. At any rate the look of them, together with the report on the feeling in the London bacon market, had the result that, at the voting, each

chairman and each manager verbally gave his vote for the resolution, only one factory refusing to vote. The Minister issued the necessary regulations and in 1908 a new law was enacted incorporating the resolutions of the meeting in February 1905, including the use of a modified "Lur" Brand for bacon of Class 1 A.



By a very strict and thorough Veterinary Control Service the Danish bacon soon acquired the high reputation it has since enjoyed. The factories gradually adapted themselves to this new conditions, as further explained below, and the good work performed at the factories soon made them realise how beneficial the new order was for all concerned. But the story does not end here. The better the work done at the factories, the more these desired to have certain practical regulations for the trimming, salting and general treatment of the bacon uniformly adopted by the factories. But a few of these found it to their advantage certain irregular proceedings to adopt in their competition with the other factories. And the Federation of Danish Cooperative Bacon Factories at last realised that they lacked the power to force the unwilling members to keep to the regulations. They therefore adopted the very sensible course of approaching the Minister, who had the power, asking him to make compulsory those regulations which had been drawn up by Head Office of the factories. This was done, and it has had the desired result.

It will thus be seen that a Control Service, carried through by the initiative of the Administration and opposed by the industry, has been found by the latter not only to be beneficial for all concerned, but to be of such a nature that the industry has found it advantageous to apply to the Administration for an extension of its action, in order to enforce regulations in which the industry was interested but which it had found it impossible to enforce by itself. The result has been the most harmonious collaboration between the Administration and the industry, to the great benefit of Danish bacon.



Somewhat similar developments were experienced when other regulations were carried through by the Administration. As is not unnatural, the industry is a priori somewhat shy of the necessary restrictions; but when these have been uniformly adopted they have generally been found to be to the advantage of all, and to secure for the produce in question a higher uniform quality and thereby a stronger position in the world's markets. A proof of this is afforded by the fact that in several cases an industry has applied to the Administration for the benefit of a regulating control service.

It is generally known that all milk and cream has to be pasteurised at the dairies (creameries), but the history of how this pasteurisation was introduced has been generally forgotten or misunderstood. In 1882 the first cooperative dairy was started, and by 1890 about 700 were working, with the result that the total production of butter was doubled. This was a great advantage economically, but it contained a grave danger. At the dairy the milk of several hundred herds was mixed and then returned to the farmers, to be used chiefly as food for calves and pigs. As some herds yielded tuberculous milk, this was mixed with the other milk and returned also to farms where the cattle were free from tuberculosis. The danger therefore was that the tuberculosis should spread, and how could that be avoided if the cooperative system were to be maintained? The solution of this problem came as a *deus ex machina*.

The finest Danish butter at that time was the so-called estate butter, produced at the private dairies of large estates with 100 or 200 cows. Prominent among these was the estate of Duelund. Now it happened that the hitherto excellent butter from that estate fell off in quality, and at last became quite unpalatable, and nothing known to dairy-practice or science could improve it; the "disease" even spread to neighbouring farms. A bacteriological expert was sent to Duelund, a laboratory fitted up, and it was found that a certain bacterium, present in the cowsheds and in one of the wells, was the cause of the objectionable taste and flavour, and that this bacterium was destroyed when heated to 71° C. To the undisguised horror of the dairy expert the bacteriologist proposed heating the cream to that temperature and, after cooling, to have it fermented by the addition of some buttermilk from a dairy that

made good butter. This plan succeeded completely, and fine butter could again be produced at Duelund when the cream was "pasteurised". A report on the original scientific researches was published in 1891 and carefully studied throughout the dairy industry. Other dairies experiencing difficulties with the quality of their butter tried this system of "pasteurisation", and using buttermilk from other dairies or the "pure cultures" of lactic acid ferment which then came in use. Invariably it was found to answer. It was found at the butter shows that an increasing proportion of the prizes was awarded to those dairies who had adopted the new process. In a truly remarkably short time the proportion of such dairies increased from 11 per cent. in 1892 to 97.5 per cent. in 1897. And the average temperature of this pasteurisation increased from 74° C. in 1894 to 87° C. in 1900, as evidenced by the information obtained at the butter shows.

A new practice of butter making had been introduced and voluntarily adopted by almost all Danish dairies (later on adopted in all countries where butter is made on a large scale), and this practice involves the heating of the cream to a temperature at which tubercle bacilli are destroyed. Thereby the danger of spreading the tuberculous infection by means of the mixed milk from the cooperative dairies could be avoided if such pasteurisation were made compulsory. And this could be done without much difficulty, as it was already voluntarily practised by nearly all dairies. This was therefore done by the Act of 1898, amended in 1904 and 1912, whereby it is prohibited to deliver from dairies, as food for cattle, milk and buttermilk which has not been previously heated to 85° C., later on altered to 80° C. A technical improvement in butter-making thus prepared the way for very important legislation for the protection of the health of cattle and pigs, a legislation which it would have been almost impossible to carry through without this unexpected and prompt help.

## LAWS AND CONTROL SERVICES

The control of the export of agricultural produce, including live stock, is under the supervision of the Ministry of Agriculture. It aims at three different objects: to prohibit the ex-

port of such goods which foreign countries do not wish to receive; to regulate the production and further treatment of the produce in order to secure the uniform high quality characteristic of Danish agricultural produce, which also makes its disposal easy and reduces the cost of distribution; and further, to satisfy the requirements which several foreign countries have stipulated as conditions for the import of certain kinds of produce.

A law of 1876 authorised the Minister of Agriculture to take steps to prevent *the exportation of live animals* suffering from a contagious disease or coming from a district where such disease exists. A Veterinary Control Service under the Chief Veterinary Officer, with two Veterinary Inspectors and two Assistant Inspectors, have to see to it that the local veterinary surgeons, authorised for the work, carry out the regulations issued by the Minister. The present law dates from Dec. 1934.

Cattle, sheep, goats and pigs may be exported only if inspected and found fit, when a metal plate is fixed in the ear bearing a crown, figures and letters. In case of certain contagious diseases a district round the attacked farm is closed, and for a certain time no animal of the kinds named may be removed from this district nor consequently exported.

Two control services deal with the production and export of *agricultural produce*, one group comprising butter, cheese, milk conserves and eggs, and the other meat, bacon and meat conserves. *The Control Service for the first group of produce* is under a Chief Inspector with four Inspectors and eight Controllers, five Assistant Controllers and an Egg Expert, besides occasional labour at the examination of eggs. *The Control Service for the second group* is under the Chief Veterinary Officer with two Veterinary Inspectors each of whom has two Assistants. Under them are the Veterinary Surgeons appointed by the Minister to the authorised slaughter-houses and canned meat factories, totalling about 330. There is further an Inspector in connection with the control of bacon, who has to see to it that the exporting bacon factories adhere to certain rules prescribed by the Ministry for the trimming and treatment of sides of bacon for export to Great Britain and Ireland.

*Butter.* The beginning of the first control service was the appointment of three inspectors under the Margarine Law of

1888, which, like the later laws, might as well be named Butter Laws, as their chief object is to guarantee the purity of butter. The first of all laws dealing with margarine was the Danish Act of 1885. The inspection under the later laws has effectually prevented any attempt to adulterate butter with margarine, as was largely the practice at the time in other countries. But the chief reason that no adulterated butter was ever exported from Denmark is due probably not so much to the heavy penalty provided (imprisonment) as to the feeling throughout the population of the importance of keeping the high reputation of the rapidly increasing butter export beyond all suspicion.

The control service supervises the exports, examines the books ordered to be kept by the exporters, and takes samples of butter and margarine at stores, factories and shops. Exporters of butter and margarine have to be registered by the police.

By a law of 1905 it was enacted, in order to enable the control service the easier to distinguish between butter and margarine, that all margarine shall contain a tell-tale substance viz. so much sesame oil, about 10 per cent., that the clarified fat by a chemical reaction produces a certain pink colour, which is not produced by butter fat. In 1907 this requirement was extended to apply to imitation cream and other fatty emulsions. Several attempts had been made to prepare such fatty emulsions from skimmed milk with various cheap fats or oils to be used as food for calves instead of whole milk. Nothing came of it, because the calves did not thrive on these preparations, but it was feared that it might offer a temptation to mix a quantity of such artificial cream with the milk to be delivered to the cooperative dairy, where it was generally paid for according to the percentage of fat present. With an admixture of sesame oil to the fat emulsion such adulteration could be easily detected. It was, however, never attempted. The regulation is still in force and applies to all fatty emulsions.

By the Act of 1911 on the Trade in Butter, together with the accompanying Royal Decree concerning the "Lur" Brand, and by a series of Ministerial Regulations a considerable number of rules have been fixed for the production and export of butter. In order to obtain permission to export butter a dairy

or creamery must apply to the police. If found satisfactory it is accepted by the Control Service, is given a registration number and is supplied with the necessary "Lur"-branded packing materials. The "Lur" Brand is hot-pressed on two staves in each cask, and on these must also be marked the registration number, the net-weight and the date of packing. On so-called control labels placed immediately on the butter, on top and bottom of the cask, must be marked, besides the "Lur" mark, the date and certain numbers, which with the registration numbers enable the Control Service to ascertain the dairy from which the butter came. Butter without this "Lur" marking must not be exported. It must besides fulfil the following requirements.

1. *It must be prepared from pasteurised cream.* 12,000 samples of cream, butter-milk and skim-milk are taken annually by the Controllers to see whether they have been pasteurised. Contraventions are punishable by fines.

2. *It must not contain above 16 per cent. of water and must contain at least 80 per cent. of butter fat.* About 20,000 samples of butter and 4,500 samples of margarine are examined annually by the Control Service for percentages of water, fat, sesame oil, preservatives, etc.

If more than 16 per cent. of water is found in a "Lur"-marked cask the butter is confiscated.

3. *It must contain no other preservative than common salt.* No other preservatives have ever been found.

4. *It must contain no aniline dye.*

5. *It must not be adulterated.*

6. *The butter must maintain a certain quality.* All dairies accepted for control must send, whenever requested, an already packed cask of butter to the State Butter Testing in Copenhagen, where it is judged by three groups of judges with two butter merchants and one dairy representative in each group.

The result of the judging is communicated to the dairy or creamery for its guidance.

If the quality is inferior, another cask from the dairy is called in and, if this is no better, the manager is advised to call for the services of the Government dairy expert for the district, whose assistance is free. If this advice is not taken and if a further sample shows a low quality, then the dairy is deprived of the use of the "Lur" Brand, and therefore cannot export its but-

ter. If the dairy expert is called in, some time is allowed in which to find and remove the cause of the faulty quality. If the butter is then still unsatisfactory the "Lur" brand is taken away. When the dairy has succeeded in improving the quality the police will return the "Lur"-branded packing materials.

Butter packages, by the Law of 1926, must contain either 112, 84, 56 or 28 lbs. net weight.

*Cheese.* By an Act of 1921 every dairy making cheese for sale has to notify the Control Service, which allots the dairy a registration number to be marked on each cheese. There are 6 classes of hard cheese and 3 of soft cheese, and it is prescribed how much fat must be in each kind of cheese and how much water may be contained. Some kinds of cheese must not be exported until they have been stored a certain stipulated time. The fat content, expressed as a percentage of the total solids, must be marked on the cheese, and on the hard cheeses also the number of the week in which they were made.

What applies to butter and margarine applies also to cheese, that the officers of the Control Service have free access to all places where the goods are made or stored and to railway stations, harbours and ships.

*Milk Conserves.* The export of milk conserves was regulated by Law of 1923, amended 1927, dealing with milk powder and dried milk, condensed milk, sterilised milk and cream and other similar products. Export is permitted only if the goods are prepared in a factory or dairy authorised by the Minister of Agriculture and having a registration number. Only good, fresh and properly treated milk may be used and the finished product must be pasteurised before it leaves the factory. No other addition than sugar is permitted. On the label of the packing must be stated, in Danish or another language, that the product is Danish, the registration number of the factory and the kind of product contained. If sugar is added that must be stated and likewise how much water must be added to replace that which has been evaporated. Exporters must give notice to the Ministry stating the premises from which export is to take place. Every consignment must be accompanied by a declaration signed by the exporter, which is returned by the Customs to the Control Service. The latter takes samples at the factories or other places where the goods are stored, to

ascertain the keeping quality and the general quality and whether the contents correspond to the statement on the label. In case of contraventions the authorisation may be withdrawn, wholly or partly.

If concentrated milk prepared outside Denmark is re-exported from Denmark the label on each tin must bear a clear indication of the country of origin.

*Eggs.* The work of this Control Service was very largely increased when it took over the control of the export of eggs. This was done in pursuance of the Act of 1925, extended by that of 1928. It was prescribed how Danish eggs must be designated, as "Danish", "preserved", "cold-stored" etc. and the description must be marked on the ends of the packing cases. Second class eggs must not be exported. Eggs are to be sorted according to weight and the grade weight, meaning the weight in lbs. of 120 eggs, must be marked on both ends of the packing cases outside as well as on the inside. Inside is also a mark indicating the week of despatch. Every fresh Danish egg must be marked with the word "Danish" in an oval frame.



Exporters must be authorised by the Ministry and must keep account of the number of eggs received and exported. The import and re-export of eggs from other countries are regulated.

The officers of the Control Service inspect the books and take out cases of eggs to examine whether the eggs are sorted according to weight as prescribed and whether the weight and quality correspond to the marking on the cases. This examination takes place in the packing stations and in five export ports on premises hired for the purpose.

The very thorough control of the export of butter, eggs etc. has materially helped to secure the high reputation of Danish agricultural produce in the world's markets.

*Bacon and meat.* The Control Service for the second group of agricultural produce has to do with the 62 cooperative and 22 private bacon factories, 68 public abattoirs and 26 cattle

slaughter-houses. To each of these the Minister has appointed veterinary surgeons, about 300 in all, besides the 30 at the canned meat factories. This Control Service was instituted by the Act of 1908. The chief regulations were issued in December 1924.

Meat cannot be exported unless prepared at a slaughter-house authorised by the Minister and registered by the police. The veterinary surgeons must be present all the time when slaughtering takes place and must examine the animals both before and after slaughtering, and all their organs. The car-



cases are classified according to their condition of health, and are stamped with a blue stamp for Class I, a black stamp for Class II.

A special Class IA is prescribed for meat of pigs for export to the United Kingdom. Carcases, meat and offal of such pigs are to be marked by a red stamp containing the "Lur" Brand and the word "Danmark". This special class is for pigs of Class I which have been found free of every trace of tuberculosis and also free of rickets, and only meat of this class may be exported to the United Kingdom.

At the request of the Federation of Danish Bacon Factories the Ministry of Agriculture has prescribed certain rules for the trimming and other treatment of bacon. In order to ascertain whether these rules are adhered to the factories are under Government inspection, and surprise exhibitions are arranged where bales of bacon from every factory are taken at random and judged by six judges. In case of contraventions the factories are fined.

The factories have their registration number, which is on all the stamps which the veterinary surgeons apply to the carcases or to packages of meat or offal.

*Canned meat* factories must be registered and have a registration number which must be embossed on the lids of all tins. Regulations are issued as to which class of meat and



offal may be used in the manufacture and also as to the marking of the produce.

No other preservative than salt, saltpetre, sugar and the products of wood-smoke may be used for canned meats or meat of any kind or offal.

A special set of regulations is in force for slaughterhouses and meat packers, dealing with the cleanliness and sanitation of the premises and implements, the health of the persons and so on, and the Veterinary Surgeons have to see that these regulations are adhered to. They have also to administer the system of fees lately introduced in connection with slaughtering.

This Control Service has been of very great benefit. It has secured a uniformity of the produce which makes its disposal in the markets both easier and cheaper. Denmark is the only country which can justly claim that all the exported bacon of class IA is perfectly free from tuberculosis. These conditions together with the superior quality has secured for Danish bacon a prominent position in the world's markets.

By these Control Services for butter, eggs, meat, bacon etc. and by the regulations dealing with the production and export of these products it has been obtained that they fulfil all the requirements of the countries to which they are exported, which requirements vary for the different countries. In some respects stricter rules are enforced in Denmark for the goods exported than the importation requirements in the countries of destination demand.

There is one more Control Service which ought to be mentioned. In 1907 an English Act prescribed certain precautions against the introduction of contagious plant diseases and pests from abroad. Other countries followed suit with similar laws. The general principle is that live plants or parts of plants may be imported only if accompanied by declarations by an official Control Service in the exporting country which has been accepted by the authorities in the country of import. The Danish Law on Plant Diseases and Destructive Insects and Pests now in force dates from 1927. In order to be admitted by import to the countries in question plants must be cultivated in areas where they can be inspected by the officers of the Control Service while growing, so that the officers can ascertain whether they are free from contagious diseases

and pests. Before export the goods must be examined by the Control Service, which issues the necessary declarations and seals the packages with the seal of the Service.

Several countries require health certificates for potatoes to be imported. The chief danger is the Colorado beetle, which has not been found in Denmark, and the wart disease, which is present in a few districts. The Control Service must ascertain that potatoes to be exported have been grown in a district free from wart disease. The consignment must be examined and passed for export only if quite free from wart disease and containing only a small proportion of damaged, mouldy or scurfy tubers. The declaration must state that the potatoes have been grown in a district free from wart disease, that the consignment is free from this and other contagious plant-diseases and destructive pests and is packed as prescribed. All bags must be sealed by the seal of the Service.

All the Control Services act together with the police and the Customs.

In recent years certain restrictions on our free export to certain countries have been imposed, but as these are probably only interimistic they are not included in this survey. They have, however, in several ways greatly added to the work of the Control Service.

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## CORRELATION BETWEEN DANISH AGRICULTURE AND INDUSTRY

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It often happens that foreigners are apt to imagine Denmark as being a country where most of the inhabitants — indeed almost all — are occupied in farming. It is a natural opinion to hold, because for many years Denmark has been the largest purveyor in the world of some of the principal articles of food. Of all the country's exports of butter, bacon and eggs, 25, over 50 and about 25 per cent. respectively are of Danish origin. The position consequently is that three-fourths of Denmark's exports — which are among the highest per capita in Europe — comprise agricultural produce.

But if Danish agriculture is looked at not only in respect of what it exports, but also from the employment angle, it will be found that the number of people who earn their living from it is no larger than the number employed in industry and handicrafts, that is to say about 30 per cent. of the total population. That equality in numbers is relatively recent, however, for since 1880 the industrial population has grown by 85 per cent., whereas the agricultural population has remained almost stationary.

As is the case with agriculture in Denmark, the industries may very definitely be called refining industries, basing their business on supplying goods of high quality; but whereas the greater part of agriculture's produce is sold outside of the country, the home market has been and is still the solid foundation of the industries, for between 70 and 80 per cent. of the country's consumption of industrial products is estimated as being of Danish origin. Having regard to the small size of the population, 3.7 millions, this consumption may seem to be a very slender foundation for a large industrial production, but

it must be borne in mind that Denmark is a country with a relatively high standard of living.

A glance at the various branches of Denmark's industry, especially those which may be called exporting industries, will reveal that in certain fields of great importance they are very closely connected with Denmark's agriculture. That agriculture stands so high in international repute as it does is not due solely to the very meritorious work of the farming population (particularly the efforts of the producers to guarantee commodities of high quality, as to which the reader is referred to the foregoing article on Control Measures); another contributory cause is that a very important element in production, the technical factor, has been in order.

Half a century ago, when the European markets were flooded with cheap overseas grain, Danish farmers instituted a radical reorganization of their production. From being cereal producers they proceeded to concentrate on milk production and pig breeding, imported grain being fed to the livestock in addition to the home-grown fodder. At the same time the handling of farm produce in dairies and slaughteries was mechanized, and simultaneously these branches of production were centralized.

The handling of large quantities of milk in a relatively short time was made possible by the cream separator, the invention of the Danish engineer L. C. Nielsen in 1878. That innovation speeded up the system already in practice at many places, that of collecting milk from several producers in a certain area and treating it in premises erected for the purpose. A large number of dairies were built just then, and the number grew so rapidly that now there are 1,700 of them, 1,402 co-operative and 338 private, having at their command in 1936 a milk output of 5,120,000,000 kg., of which four-fifths was used in making butter. Very soon it became necessary to have power for running the separators, and the rapidly growing demand for other dairy machinery and appliances became a problem to the industries, a problem so urgent that its correct solution was vital to the success of the reorganization of the farming system. The industries proved their ability to cope with it, and Danish dairies today are equipped almost exclusively with Danish machinery.

Since that time the machines and the materials employed in their building have changed essentially. The original decimal weighing-machines have been replaced by automatic machines. Aluminium and stainless steel together with tinned copper are used for pasteurizing apparatus and coolers; pressure pasteurizers and stassanizing apparatuses are now in use, handling the milk entirely without contact with the atmosphere to preserve the vitamins and other valuable properties. Cream souring nowadays proceeds in large vats where the temperature can be regulated, and, instead of the old-fashioned Holstein churns, there are now combined churn- and butter-workers, in which the cream is churned and the butter worked into the finished product. The first separators had a capacity of only a few hundred kilogrammes an hour, and the fat content of the skim milk in almost all cases was over 0.1 per cent.; the capacity of a modern Danish separator has risen to 5,000 kg. per hour, and the fat content of the skim milk is now down at 0.05 per cent. Milk cans, too, have developed considerably. Instead of primitive containers of wood and metal, the type nowadays is seamless, i. e. it is pressed out of one sheet of metal without joints of any kind, and with rounded corners.

Pasteurizing made it possible to supply consumers with a pure and non-infectious product, but the means was lacking to ensure that this perishable food could reach the inhabitants of large cities without being contaminated on the way. The importance of this was recognized early in Denmark, and Danish manufacturers embarked on the task of producing bottle-washing and filling machines capable of satisfying the most critical claims of hygiene and suitable for milk-supply plants of every size; the problem of a hygienic sealing of the bottles was also solved by specially designed caps. Other Danish machines for special purposes are homogenizers, which are becoming more and more used in modern dairies and associated branches such as the production of ice-cream. These machines emulsify the butter-fat globules in the milk, and in recent years have also been incorporated in cheese-making, especially qualities such as Blue Cheese, Gorgonzola and Stilton.

Danish milk-condensing factories work in direct continuation of dairy-producing; their products are well known in ship-

provisioning ports. More than 30,000,000 kg. leave these factories every year, and they are equipped with the finest plant of modern times. In this connection mention may be made of milk-powder plants, which are employed particularly in countries where the pig-breeding industry is not great enough to consume all the skim milk.

All in all it is beyond question that manufacturers of dairy machinery have been a very powerful pillar to the dairy-farming industry in Denmark. They have continuously worked closely with institutions of research in dairying at home and abroad, and they are always endeavouring to turn out new improvements and new designs in order to meet the requirements of the dairies and the consuming public.

There has been a similar collaboration between agriculture and the Danish bacon industry. The first Danish co-operative bacon factory was started in 1888, six years after the first co-operative dairy, and now there are 85 co-operative and private factories; in 1936 they handled about 4,500,000 pigs. By establishing uniformity in the selection of breeds of animals and in their feeding, a basis was secured for turning out a standard commodity of high quality. A corresponding standardization was established in the handling of the pigs in the factories, where nothing but the most up-to-date appliances are used. The high standard of this equipment has been attained after long experimenting and constant improvement of the appliances in use, of which the best known are: killing lifts, automatic release winches, oil singeing furnaces, dehairing machines, black-scraping machines, etc. as well as plant for destruction establishments and for rendering and refining lard, including centrifugal lard-clarifiers. Danish machinery builders also construct plant for use in poultry slaughteries and in packing factories, two sources of production whose sales abroad have increased rapidly during the past few years.

Danish manufacturers of machinery started on rock bottom and succeeded in building up all that long series of plant and apparatuses used in the production of dairy and bacon-factory commodities, and so perfect technically that they have helped to consolidate the fine reputation of Danish agricultural produce. Therefore it is not at all surprising that these manu-

facturers now form one of Denmark's best-known exporting industries, not only selling single machines here and there, but supplying complete plants for dairies, milk-supply establishments and bacon-factories to many different countries.

There have been great developments in the technics of refrigeration and ventilation, all intimately connected with the refining of the products of agriculture; they are of importance not merely to the processes in dairy and bacon-factory, but also to the conveyance of the finished commodities. In Europe, in Asia, in South America and the East Indies, in tropical factories and houses, and particularly in the large vessels carrying Europe's foodstuffs and beverages out to the East, and the fruits of the tropics to Europe, there are plants made by Danish refrigerating engineers. A recent summary of all refrigerated ships with holds of over 20,000 cubic feet shows that two Danish works occupy the fifth and sixth positions among the largest manufacturers of marine refrigerating plant in the world.

Besides the mechanical refining of agricultural commodities there is a techno-chemical conversion. The manufacturing of the so-called dairy preparations, rennet, butter colour, etc., is a Danish speciality, products of an industry whose birth dates from the time when Danish scientists found methods which in all essentials are still employed in the making of these preparations. Factories of this kind have been started in other countries on the Danish model, but this special Danish industry still holds the lead and exports sufficient to supply a very large part of the world's consumption of dairy preparations.

An industry which has part of its roots extended to Danish agriculture is that which manufactures medicinal preparations (see the article on page 231). Danish medicinal factories make many of the organo-therapeutical preparations used in modern medicine, for example Insulin for diabetics. Most of the raw materials for this industry, certain animal viscera and glands, come from the Danish slaughter-houses, so that there is the best guarantee of their quality and purity. Intense collaboration between Danish physicians, physiologists, chemists and engineers has resulted in large manufactures of these preparations, the value of the exports being very considerable.

Denmark's large exporting industry — the oil industry —

is also an outcome of the correlation between agriculture and industry. When Danish farmers fifty years ago re-organized their production from exporting grain to exporting animal products, one of the consequences was a demand for feeding-stuffs rich in protein, such as oil-cake. At first the demand was met by foreign imports, but very soon manufacturing in Denmark began, the raw materials such as soya beans, copra, ground-nuts and palm kernels being imported from overseas. Originally the oil obtained from making the oil-cake was regarded as a by-product; later, however, when the margarine and other industries began to require vegetable oils, the entire picture changed and now the oils are by far the most valuable part of the output of the mills. In Denmark 140,000,000 kg. of vegetable oils and 325,000 tons of oil-cake and cake-meal were produced in 1935, and about 70 per cent. of the year's output, having a value of about 100,000,000 kroner, was exported. There is a very close co-operation between the oil-mills and the margarine industry, whose high standard has done much to maintain the large exports of butter from Denmark, the fact being that, in spite of the large output of butter, margarine forms part of the population's daily consumption and thus releases a large surplus of the butter output for export.

Another example of the correlation between agriculture and industry is provided by the fertilizer plants, which handle about 300,000 tons of raw materials per annum. Then there are the sugar factories, the breweries and the spirit and yeast industry, as well as the footwear and leather industries, which secure much of their raw materials from Danish agriculture. One of the specialities of the latter industry is suede leather, of which large quantities are sold abroad as a result of its fine quality.

It should be interposed here that a very large electro-technical industry has grown up in Denmark side by side with the electrification of the country, which now has a widely ramified network, particularly in the rural areas. The great majority of the enormous numbers of electro-motors now running in the service of trade and industry in the towns and on the farms, in dairies, etc. were made in Denmark, and the same applies to the machinery of the power-stations and the many transformer-stations spread all over the country.



All this is but a small section of the wide-embracing activity of Danish industries, but it illustrates how it has been possible to build up industries naturally in close association with Denmark's main business: agriculture.

Nevertheless, other Danish occupations, particularly shipping and the fisheries, have also set the industries difficult problems to solve; the result now is that it is no uncommon occurrence in foreign ports to see fishing-boats and trawlers fitted with Danish motors, or to meet ships flying foreign flags but built at Danish yards. In recent years Denmark has frequently ranked among the largest shipbuilding nations next after Great Britain, Japan and Germany. That such significant results have been possible must be attributed to excellence of design, first-class workmanship, wide selection of types, and competitive prices. Danish shipbuilders supply both passenger ships and cargo ships, the latter of all types and sizes and fitted with the best possible equipment for the carrying of specially difficult cargoes such as oil, fruit, and fish. In one very important field in this industry Denmark was a pioneer, viz. in the building of ocean-going Diesel motorships, an era that was inaugurated by the voyage of the "Selandia" in 1912. Much the greater number of vessels built in Denmark are for foreign owners. This export trade is of great importance, not alone to the employment of the yards themselves but also to the many Danish works which, by supplying equipment for vessels built for foreign account, get their products exported. This applies first and foremost to Diesel engines; of the world's total tonnage in ocean-going Diesel motorships, 43 per cent. are fitted with engines of the Danish B & W system; but it applies equally to electrical steering-gear and deck machinery, oil separators, refrigerating plant and wireless sets, which thus have a large turnover.

In former times it was looked upon as a serious drag on industry if a country was unable to supply itself with raw materials so important as coal and iron. Present-day means of conveyance, however, have meant that industrial development can proceed regardless of the presence or absence of these materials within a country's borders. Everything depends upon whether the industry's improvement of the materials by

means of mechanical and chemical conversions increases their value so much that the cost of conveyance is of subordinate importance. Here it has been a very valuable asset that Denmark has a favourable geographical situation, a long coast line and many good harbours. It may be instanced that freight rates from the coal-shipping ports of Scotland and the North of England to Danish ports are no higher than those to London or other ports in the South of England.

Still, there are some Danish industries for which the presence of raw materials is all important, first and foremost the cement industry. This is an industry favoured by particularly good conditions in Denmark, for in certain parts of Jutland there are clay and chalk of fine quality, easy to get at, and close to good harbours whence the finished cement can be exported to places far and near. That industry formed the nucleus of a large engineering output in Denmark. More than seven hundred cement works, situated in almost every part of the world, are equipped entirely or partly with Danish cement-making machinery; since 1920 there have been built rotary kilns with a total annual capacity of 17 million tons of cement, corresponding to about one-fourth of the world's entire output in 1930.

The most important industrial asset Denmark possesses is beyond question its efficient and well-trained worker population. The maintenance of a refining industry, whose success in competition depends on the quality of its products, is mainly a question of training and technique. Naturally, it is very important to be able to use modern machinery and other industrial equipment, and to employ the latest improvements in methods of production; but the full advantage is only reaped when the machines are tended by people capable of producing industrial wares of high quality.

In this respect Denmark is well off. It was among the first to introduce compulsory education, and that education has laid a solid foundation for the general cultural development of the people of Denmark, a development which has been of almost vital importance to the advanced training of special workers for industry. Among the forms of higher education mention should first be made of the systematic training at

technical schools, which aims at inculcating industrial apprentices with professional knowledge and enabling them to understand the deeper essentials and purpose of work; in other words, making them good citizens who take an interest in doing all they can to improve industrial production. Side by side with this training of the working-class proper, attention has been given to making efficient links between workers and management: foremen, works managers, engineers and designers. Having regard to the size of the country the number of technical schools is large; there the most skilful workers receive a more advanced and more theoretical training on the basis of the practical experience gained at their work; in addition, the establishment of the *Technological Institute* has made it possible for the master craftsman to maintain his efficiency and to learn the new processes, methods, etc. that come along. Industry in Denmark also receives valuable support from *Denmark's Technological University* through its training of scientifically equipped engineers who are capable of leading factories, and also by virtue of the position of that institution as the pillar of technical science in its development.

No doubt the foregoing will have enabled the reader to understand how it is that a small country, with a limited home market, comprising only 3.7 million people, with restricted capital resources and small supplies of raw materials, has succeeded in establishing industries which provide employment for almost one-third of the population and has built up an export value which, from being 25 million kroner at the beginning of the present century, has grown to 313 millions in the year 1936.

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## ECONOMIC AND TRADE INFORMATION FACILITIES IN DENMARK

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The preceding chapters comprise a survey of the measures taken to ensure high quality for agricultural produce buyers, and also a summary of the correlation between Danish agriculture and industry. For the guidance of those who may wish to have additional information concerning Denmark's industrial and trade life, the following pages contain an outline of the activities of the Trade Information Department of the Foreign Office and of the various commercial organizations. The survey concludes with a synopsis of those trade journals which publish matter of an economic or commercial nature.

### TRADE INFORMATION DEPARTMENT OF THE FOREIGN OFFICE

*Address:* The Foreign Office, Christiansborg, Copenhagen, K.  
*Started:* In 1922.

*Objects:* The principal object of the Department is commercial intelligence and the collection of information concerning marketing possibilities for Danish products and buying possibilities abroad.

In Denmark the Department is in direct contact with the various trade organizations and individual manufacturers and traders, while outwardly it corresponds with Denmark's representations abroad: the legations and consulates.

#### *Connections with foreign firms.*

Should a firm abroad desire to trade in Danish goods, a communication to that effect should be forwarded to the Trade Department direct or through the Danish representation in the country concerned. It will then receive a form to be

filled in with particulars as to postal address, telegraphic address, language in which correspondence can be exchanged, when the firm was started and in what capacity it trades (importer, commission agent, representative, exporter), and as to the articles that are of essential interest.

With these particulars in hand the Trade Department will put the enquirer in touch with one or more Danish firms in a position to supply the articles required. If the application is forwarded through the medium of a Danish legation or consulate, the applicant will be informed by the representation of what the Trade Department is doing in the matter.

The Trade Department is also in a position to assist firms abroad in procuring more detailed information concerning Danish export articles.

## DANISH TRADE ORGANIZATIONS

*The Agricultural Council.*

(Landbrugsraadet.)

*Address:* Axelborg, Copenhagen, V.

*Started:* 1919.

*Objects:* To act as the joint representation of the leading agricultural-organizations for the purpose 1) of promoting the co-operation between the active and economic organizations of Danish farming, and to engage upon tasks of common interest outside the scope of the individual organizations, which at all times are free to take up objects coming in under their particular sphere;

2) To be at the disposal of the Government and Parliament in matters concerning agriculture, and to forward proposals of measures calculated to be advantageous to agriculture,

3) To represent agriculture vis-à-vis other countries, including a collaboration with the Government by helping in the directing of the system of agricultural advisers stationed abroad, and, if required, to send out its own representatives for the purpose of looking after agricultural and commercial interests abroad,

4) To represent agriculture in its relations with the other industries of the country,

5) To combat rings and trusts that form a menace to society.

*Organization and management:* The Council is formed of the three principal organizations:

- A. The Federation of Danish Co-operative Societies,
  - B. The Federation of Danish Agricultural Societies,
  - C. The Federation of Danish Small-Holder Societies,
- each of which elects eight to ten members.

Management and organization are charged to a Board of eight members, the Chairman being H. A. R. Hauch Esq., M. P., of Sølund, Viborg.

A. *The Federation of Danish Co-operative Societies.*

(De Samvirkende Danske Andelsselskaber.)

*Address:* Njalsgade 15, Copenhagen, S.

*Started:* 1917.

*Objects:* To consolidate and develop the co-operative movement in Denmark and to preserve contact with the international co-operative movement.

*Organization and management:* The Board consists of the Central Co-operative Committee (founded in 1899) on which all organizations working together within the Federation are represented:

- 1) The Federation of Danish Co-operative Bacon Factories.
- 2) The Federation of Danish Dairy Associations.
- 3) The Federation of Danish Co-operative Butter Exporting Associations.
- 4) The Danish Farmers Co-operative Egg-Export Association.
- 5) The Association of Danish Co-operative Cattle Export Societies.
- 6) Co-operative Wholesale Society of Denmark.
- 7) Ringkøbing County Purchasing Society, and  
— — Feeding-Stuff Purchasing Society.
- 8) The Jutland Co-operative Feeding Stuff Society.
- 9) Danish Islands Co-operative Feeding-Stuff Purchasing Society.
- 10) The Funen Co-operative Feeding Stuff Society.

- 11) Danish Co-operative Fertilizer Society.
  - 12) Danish Co-operative Cement Works.
  - 13) Danish Co-operative Coal Society.
  - 14) Funen Coal Purchasing Society.
  - 15) Union of Danish Co-operative Farm Insurance Societies.
  - 16) Danish Agricultural Societies' Seed-Supply.
  - 17) The Co-operative Bank.
  - 18) The Co-operative Village Banks.
  - 19) The Co-operative Sanatorium Society.
- Chairman: L. P. Broberg Esq., Copenhagen.

*B. The Federation of Danish Agricultural Societies.*

(De Samvirkende Danske Landboforeninger.)

*Address:* Axelborg, Copenhagen, V.

*Started:* 1893, reorganized 1917.

*Objects:* As an amalgamation of the provincial Associations of agricultural societies, to promote Danish farming and safeguard its interests, especially in its relations with the State and with other industries.

*Management:* 1) A Presidency, consisting of two chairmen, for the period 1st April 1936 to 31st March 1937: H. A. R. Hauch Esq., M. P., Sølund, Viborg and J. J. Tvedegaard Esq., Langemosegaard, Ringsted.

2) An executive committee, consisting of the presidency and the chairmen and vice-chairmen of the Associations forming the Federation.

3) A management consisting of the executive committee and 20 members.

*C. The Federation of Danish Small-Holder Societies.*

(De Samvirkende Danske Husmandsforeninger.)

*Address:* Studiestræde 38, Copenhagen, K.

*Started:* 1910.

*Objects:* To bring about the greatest possible co-operation and uniformity of working plan between the co-operating small holder societies in the various provinces (which retain their individual independence) and to represent all such small holder societies in their relations with the legislature and the other industries.

*Organization and management:* The affairs of the society are in the hands of a Board of 14 members, who elect the chairman, vice-chairman and an executive committee.  
Chairman: N. P. Andreassen Esq., Forsinge.

*The Royal Danish Agricultural Society.*

(Det kgl. Danske Landhusholdningsselskab.)

*Address:* Rolighedsvej 26, Copenhagen, V.

*Started:* 1769.

*Objects:* To work for the common weal of Danish agriculture and, in fellowship with other organizations, to assist in raising the standard of agriculture in Denmark.

*Organization and management:* The Society is managed by a Board chosen from among its personal members, consisting of three presidents and an executive committee of not exceeding 42 members.

Leading president: K. R. Hasselbalch Esq.

*Trade Bureau for Horticulture and Market Gardening.*

(Erhvervsraadet for Gartneri og Erhvervshavebrug.)

*Address:* Anker Heegaardsgade 2, Copenhagen, V.

*Started:* 1933.

*Objects:* to promote the commercial interests of horticulturists and market gardeners.

*Members:* The General Danish Society of Gardeners elects 6, the other societies one each. The members are:

1. General Danish Society of Gardeners (Alm. Dansk Gartnerforening): address as above.
2. Danish Society of Nursery Gardeners (Dansk Planteskoleejerforening): address: Chr. Lomborg Esq., nurseryman, Aalborg.
3. Copenhagen Society of Bulb Forcers (Løgdriverforening for København): address: Otto Møller Esq., market gardener, Rødovre, Vanløse.
4. Society of Provincial Bulb Forcers (Løgdriverforening for Provinsen): address: Kai Schjerup Esq., market gardener, Aabyhøj.
5. Society of Producers in Amager (Amagerlands Produ-



centforening): address: I. P. Svane Esq., market gardener, Tingvej 109, Copenhagen S.

6. The Union of Danish Co-operative Sales Societies for Gardening and Horticulture (De samvirkende danske Andels-Salgsforeninger for Gartneri og Havebrug): address: Albert Larsen Esq., market gardener, Stige, Odense.

*Management of the Trade Bureau:* Chairman: I. C. A. Carlsen-Skiødt Esq., M. P., Odense.

*The Council of Fisheries.*

(Fiskeriraadet.)

*Address:* Fiskeridirektoratet, Slotsholmsgade 10, Copenhagen K.

*Started:* in pursuance of the Act of 19th March 1930.

*Objects:* to keep itself informed as to developments in the fisheries and marketing possibilities and to initiate measures for their encouragement.

Chairman: C. Trolle Thomsen Esq., Director of Fisheries.

*Danish Fisheries Association.*

(Dansk Fiskeriforening.)

*Address:* M. C. Jensen Esq., M. P., Studiestræde 3, Copenhagen K.

*Started:* 1887.

*Objects:* As the central body of about 173 local fishery societies with a total of about 9,700 members, to work for the benefit of the fishing industry.

*The West Jutland Fisheries Association.*

(Vestjysk Fiskeriforening.)

*Address:* Claus Sørensen Esq., Esbjerg.

*Started:* 24th February 1934.

*Objects:* As the head organization of about 16 fishery societies with about 2200 members, to protect the interests of the fishing industry.

*Denmark's Fish Trade and Deep Sea Fishery Association.*

(Danmarks Fiskehandel- og Havfiskeriforening.)

*Address:* A. M. Vendsyssel Esq., Gl. Strand 42, Copenhagen K.

*Started:* 1881.

*Objects:* As the national organization of Danish fish exporters and wholesale fish dealers, to protect their interests.

*The United Trout-Exporters in Denmark.*

(De forenede Ørredeksporthører i Danmark.)

*Address:* P. Hansen Esq., Lunderskov.

*Started:* 1934.

*Objects:* To look after the common interests of the members, especially with regard to allocation of the quotas for trout in the various countries.

*The Federation of Danish Industries.*

(Industriraadet.)

*Address:* Vestre Boulevard 18, Copenhagen V.

*Started:* 1910.

*Objects:* As the public organization of Danish industries:

- 1) To safeguard its general economic and social interests.
- 2) To present the views of Danish industry vis-à-vis the Government and Parliament with regard to legislation affecting its interests.
- 3) To make representations to the Government and other authorities concerning matters affecting industry or individual industrial establishments.
- 4) To safeguard the interests of industry through representatives on commissions, public committees and institutions occupied on questions affecting industry.
- 5) To give expert opinions on industrial questions.
- 6) To deal with technical and industrial matters referred to it and to observe the industrial development at home and abroad.
- 7) To assist in the arranging of exhibitions abroad, film propaganda, lectures on Danish industries etc.
- 8) To co-operate with industrial organizations in other countries.

The Federation is a member of The International Chamber of Commerce.

*Organization and management:* The members of the Federation are elected every year by the industries and the Board of the Industrial Society in Copenhagen.

President: Director Aug. Holm.

Manager: Director G. E. Hartz, civil engineer.

*The Federation's Export Bureau* watches over the interests of industry with regard to market possibilities abroad, and supplies information as to conditions there, such as production, import and export statistics, import duties and import restrictions, and forwarding formalities. The Bureau forms a link between exporting establishments and its correspondents as well as Danish business people abroad.

### *The Joint Representation of Danish Crafts and Industry.*

(Fællesrepræsentation for Dansk Haandværk og Industri.)

*Address:* Vestre Boulevard 18, Copenhagen, V.

*Started:* 1879.

*Objects:* As their joint representation to promote the interests of Danish crafts and industry and, in order to protect these interests, to form societies and institutions in all parts of Denmark with the main object of working for the crafts and industry.

*Organization and management:* The Joint Representation consists of 460 societies and craftsmen and industrialists or master craftsmen, with about 70,000 members in all parts of Denmark. The following is a selection of the societies etc. in the organization:

- 1) The Society of Craftsmen (Haandværkerforeningen), address: Dr. Tværgade 2, Copenhagen. Chairman: K. V. Koch Esq.
- 2) Industrial Society (Industriforeningen), Vestre Boulevard 18, Copenhagen, V. Chairman: August Holm Esq.
- 3) Society for the Training of Apprentices in Handicrafts and Industry (Foreningen til Lærlinges Uddannelse i Haandværk og Industri), Nørre Søgade 9, Copenhagen K. Chairman: Rudolf Rasmussen Esq.

- 4) Society for Art Handicrafts (Foreningen for Kunsthaandværk), Bredgade 11, Copenhagen K. Chairman: P. U. Michelsen Esq.

**Institutions:**

- 5) Joint Representation of The Technical School (Fagskolens Fællesrepræsentation), Bredgade 75, Copenhagen K. Chairman: Hans Jørgensen Esq.
- 6) The Danish Fair (Dansk Købestævne), Fredericia. Chairman: Johs. Dalhoff Esq.

Chairman of the Joint Representation: C. J. Olsen Esq.

*The Committee of the Merchants' Guild.*

(Grosserer-Societetets Komite.)

*Address:* Børsen, Copenhagen.

*Started:* 1817 by the Ordinance of 23rd April, confirmed by the Trading Act of 28th April 1931.

*Objects:* As the official body of the wholesale trade in Copenhagen, elected by the Merchants' Guild of Copenhagen:

- 1) To send in such reports, statements and opinions as the authorities may require or as requested by private persons in actions at law.
- 2) To take part in the election of commercial and nautical assessors of the Copenhagen Maritime and Commercial Court as well as commercial assessors to the High Court of Justice, Eastern Division.
- 3) To elect three members to the committee of the Stock Exchange.
- 4) To appoint a member of the Exchange Rate Quotation Committee.
- 5) To give its attention to all other matters devolving upon the Committee according to prevailing laws and ordinances.
- 6) To draw up the regulations for the conduct of business on the Exchange.
- 7) To manage the affairs of the Exchange building and the endowment and other funds of the Guild.
- 8) To draw up the rules for the business of the Secretariat and the Exchange office.

- 9) On the whole to look after the interests of the merchant class in Copenhagen.

The Committee accordingly follows Parliament's work with regard to both new Bills and the revision of existing laws, and it presents and maintains the views of the commercial classes on legislative matters that are of importance to trade. The Committee is always in close touch with the Government departments and many other public authorities, to whom it pronounces opinions where required. As members of various public committees, commissions, etc. the members of the Committee are also the mouthpieces of the trading classes. It also takes part in the work of various joint committees together with representatives of other organizations (including the Danish Steamship Owners' Society and the Federation of Danish Industries).

Within the Merchants' Guild are a number of trade organizations, the so-called Branch Societies, each of which represents its own particular trade and with which the Committee works in matters connected with these trades.

Every year the Committee appoints members to a number of Appraisal and Arbitration Committees established on the Exchange by the Committee itself for certain trades, in addition to "The General Appraisal and Arbitration Court of the Copenhagen Exchange".

In consultation with these committees the Committee has drawn up standard sold notes for certain trades, and in cases of default in complying with an award given by one of these committees it decides whether the defaulting trader is to be placed on the "Blackboard" on the Exchange.

Together with representatives of the farmers and dairies the Butter Quotation Committee appointed by it fixes the price of Danish butter ("the Copenhagen butter quotation") once a week.

Through the national organization known as "The Joint Representation for the Danish Commercial Class" (Den danske Handelsstands Fællesrepræsentation), the Committee has allied itself with traders' societies in the various provincial towns in order to work for the promotion of

trade, and through the same body takes part in the work of the institution known as "The Scandinavian Trade Conferences" (De nordiske Handelsmøder) with merchants in Finland, Norway and Sweden. It is also an organization member of "The International Chamber of Commerce" and its chairman is the chairman of the Danish National Committee of that body, through which the Committee shares in the international work of the Chamber.

*Organization and Management:* The Committee has 17 members, elected by the members of the Merchants' Guild (at present about 5,600 wholesale dealers). The Committee is directed by a presidency consisting of a chairman and four vice-chairman. The chairman of the Committee, who is also *ex officio* chairman of the Board of 44 members elected by the general meeting of the Merchants' Guild, which forms a link between the Committee and the Guild, is Holger Laage-Petersen Esq.

*The Provincial Chamber of Commerce.*

(Provinshandelskammeret.)

*Address:* Boldhusgade 2, Copenhagen, K.

*Started:* 1901.

*Objects:* As the executive committee for the following three central associations, to attend to the interests of Danish provincial trading.

- 1) The Central Society for the Traders of Sealand and Lolland-Falster (Sjælland og Lolland-Falsters Handelsstands Centralforening). Chairman: Axel B. Lange Esq., M. P., Frederikssund.
- 2) The Central Society for the Traders of Funen (Den fynske Handelsstands Centralforening). Chairman: H. L. Poulsen Esq., Odense.
- 3) The Central Society for the Traders of Jutland (Den jyske Handelsstands Centralforening). Chairman: Holger Fink Esq., Aabenraa.

*Organization and management:* The Provincial Chamber of Commerce consists of six members: the chairman and the two vice-chairman of the Jutland society, the chairman and

vice-chairman of the Sealand and Lolland-Falster society, and the chairman of the Funen society.

*The Shipping Board.*

(Søfartsraadet.)

*Address:* Amaliegade 33, Copenhagen, K.

*Started:* 21st December 1926.

*Objects:* To uphold the interests of Danish shipping, and especially as an advisory body to secure for the organizations on the Board a guiding influence upon matters concerning them when under consideration by Parliament.

*Organization:* The following associations form the Board:

- 1) The Danish Steamship Owners' Association (Dansk Dampskibsrederiforening), same address, started in 1884, comprising 48 steamship owners, its object being to assemble the owners of steamships and motorships in the country for the protection of their mutual interests. Chairman: H. A. Hansen Esq. Manager: E. Mægaard Esq.
- 2) Danish Sailing Ship Owners' Association (Dansk Sejlskibsrederi-Forening). Address: Marstal. Started: 1895 as an organization for sailing shipowners in Denmark for the purpose of protecting their public interests and to work together for shipping and the seaman class. Chairman: E. B. Kroman Esq., Marstal.
- 3) Danish Sailing Ship Owners' Association for Small Vessels (Dansk Sejlskibsrederi-Forening for mindre Skibe). Address: Svendborg. Started 1897 for the purpose of looking after the interests of the small sailing ships vis-à-vis legislature and administration and also industrially. Chairman: A. H. Petersen Esq., Rønne. Manager: E. Borch Johansen Esq.
- 4) The General Danish Society of Master Mariners (Den alm. Danske Skibsførerforening). Address: Havnegade 55, Copenhagen K. Started 1874, with the object of looking after the interests and general conditions of the profession. Chairman: H. P. Hagelberg Esq.
- 5) The Copenhagen Skipper Society (Københavns Skipper Forening). Address: Holmens Kanal 18, Copenhagen K.

Started 1634, its objects being to work for the benefit of its members and for the support of their widows and children. Chairman: Sv. Prip Esq.

- 6) The Society for the Promotion of Shipping (Foreningen til Søfartens Fremme). Address: Ny Toldbodgade 3, Copenhagen K. Started 1844. The main object of the society is the encouragement of nautical training, in connection with which the society has established the Copenhagen School of Navigation. Chairman: Rear Admiral F. Cold.

The Chairman of the Shipping Board is H. A. Hansen Esq. and the Manager: E. Maegaard Esq.

### SOME LEADING TRADE JOURNALS

*The Foreign Office Press Bureau* publishes a periodical in Danish and journals in four foreign languages.

Whereas *Udenrigsministeriets Tidsskrift* mostly treats of subjects of economic interest in foreign countries, the journals aim at spreading knowledge of Danish trade life and Danish export products. *The Danish Foreign Office Journal* comes out every month, whereas *Revue Commerciale Danoise*, *Dänische Handels-Rundschau* and *Revista Comercial Danesa* appear every three months; they are distributed by the legations and consulates to authorities, trade associations and individuals likely to take an interest in what they contain.

The *Statistical Department* publishes an annual volume of Statistical Tables covering *Denmark's foreign trade* for the preceding year; it also issues monthly summaries of the *foreign trade*, and a variety of statistical reports in the course of the year, among which are the annuals: *Danmarks Produktionsstatistik* and *Statistisk Aarbog*.

#### *Agriculture and Horticulture.*

Besides its annual report on its own activities, the *Agricultural Council* has a weekly publication: *Landbrugsraadets Meddelelser*, containing articles on agriculture in general, reports on agricultural exports, and summaries of the markets. It also has a quarterly: *The Agricultural Export of Denmark*,



which is sent free of charge to trade organizations and individuals abroad, especially in England and English-speaking countries. Every half year appears *Dänemarks Landwirtschaftliche Ausfuhr*, which is similarly distributed in Germany and German-speaking countries, and at certain intervals *Les Exportations Agricoles du Danemark* to French-speaking countries.

The object of these three publications is to spread a knowledge of agricultural export products in foreign countries.

In addition to its annual report *The Royal Agricultural Society of Denmark* publishes a *Landøkonomisk Aarbog* (containing i. a., a detailed list of agricultural periodicals and papers — not dailies) and the *Tidsskrift for Landøkonomi*, which appears every month.

The *General Danish Society of Gardeners*, apart from its year book for gardeners, has a monthly periodical: *Gartnertidende*.

#### *Industry and Handicraft.*

In co-operation with the *Federation of Danish Industries* the *Industrial Society of Copenhagen* sends out every year a report on Danish industry during the preceding calendar year: *Dansk Industriberetning*, and every fourteen days: *Tidsskrift for Industri*, which is the official organ of the Federation of Danish Industries.

The *Joint Representation of Crafts and Industry* has a weekly journal: *Dansk Haandværk og Industri*.

#### *The Fisheries.*

As the organ of the *Danish Fisheries Society* there is a weekly journal: *Dansk Fiskeritidende*, and for the *wholesale trade*: *Fiskeribladet*, published every month by a private concern (Editorial address: Gl. Strand 42, Copenhagen, K.). The *Fresh-water Fishery Society* has a monthly members' journal: *Ferskvandsfiskeribladet* (Offices: Frederiksdal, near Lyngby).

As the organ of the *West Jutland Fisheries Association* there is a journal: *Vestjysk Fiskeritidende*, published twice a month by a private concern (Editorial address: Esbjerg).

#### *The Wholesale Trade.*

The *Committee of the Merchants' Guild* publishes two annual reports: *Verdensmarkedet og Danmark*, which appears at the

end of the year (followed by a summary in English), and a *Handelsberetning*, issued every spring and covering the preceding calendar year. The various branches also have their own trade journals.

The *Provincial Chamber of Commerce* publishes a report every year.

### *Shipping.*

The *Danish Steamship Owners Association* every spring issues a *Skibsfartsberetning* for the previous calendar year.

### *Finance.*

*Denmark's National Bank* and the *State Statistical Department* together issue a brief report on economic and financial conditions in Denmark; it is circulated abroad through the Danish legations and published in the monthly review: *Danish Foreign Office Journal*.

Of the private financial institutions *Den danske Landmandsbank* publishes a monthly report on the same subjects.

There is only one weekly devoted to finance: *Finanstidende* (Editorial offices: Krystalgade 16, Copenhagen, K), containing home and foreign financial and economic news and articles, especially for the Scandinavian countries. It also has summaries of prices and of the exports of the principal Danish agricultural products, as well as other trade surveys. It has a monthly supplement: *Obligationstidende*, containing tables of the effective bond interest in Denmark.

Finally, there are the daily: *Børsen*, the organ of Danish trade and commerce as a whole, and the special pages devoted to trade in the newspapers of the capital.

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## THE PRINCIPAL DANISH EXPORT COMMODITIES

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A list of the principal export commodities of Denmark is given below, arranged in classified groups. A more detailed description, in which the articles are arranged in alphabetical order, is given in *THE EXPORT DIRECTORY OF DENMARK* published by Krak's Legat, Copenhagen, in collaboration with the Danish Foreign Office and with the support of the Ministry of Commerce and Industry.

This Export Directory, which contains the addresses of Danish manufacturers and exporters, is available for inspection at all Danish legations and consulates, where the officials are always ready to assist in placing foreign inquirers in communication with Danish exporting firms and in procuring any additional information that may be required concerning Danish commodities.

Most Danish export commodities have been described in the monthly periodical *Danish Foreign Office Journal*, a commercial and general review published by the Foreign Office. Which commodities these are will be found on the list on page 328, comprising the last ten annual volumes of the Journal. Each commodity on that list is furnished with two numbers, the first in thick type indicating the number of the issue of the Journal in which the commodity has been referred to, the next number the page.

The various issues of the Danish Foreign Office Journal may usually be consulted by those interested on application to the Danish legations and consulates, see the list page 32.

1) AGRICULTURAL AND HORTICULTURAL  
PRODUCE

a) *Live Animals.*

Cattle  
Horses  
Pigs  
Poultry

b) *Slaughterhouse Products* (see also Preserved Foodstuffs and Fats):

Bacon  
Beef and veal, fresh and salted  
Casings  
Hams  
Offal and animal glands  
Pork, fresh and salted  
Poultry, slaughtered  
Rabbits, slaughtered  
Sausages

Lard, pure,  
Lard and grease, technical  
Tallow

c) *Other Animal Products.*

Feathers and down  
Hides and skins  
Hair, animal, prepared and unprepared

d) *Dairy Products:*

Butter in casks  
Butter in packets and tins  
Milk and Cream, condensed, evaporated, sterilized  
Milkpowder

e) *Cheese:*

Blue cheese, Danish (Roquefort type)  
Camembert, Danish  
Emmenthaler, Danish  
Gouda, Danish

Processed cheese  
Swiss cheese, Danish

Casein

- f) *Eggs:*  
Eggs in shell  
Eggs, shelled (in tins, frozen or dried)
  - g) *Cereals:*  
Grain  
Malt barley  
Malt
  - h) *Seeds:*  
Clover and grass seeds  
Flower seeds  
Mustard seeds  
Root seeds  
Tree seeds  
Vegetable seeds
  - i) *Fruit:*  
Apples  
Cucumbers  
Melons  
Pears  
Tomatoes
  - j) *Vegetables etc.:*  
Cabbage, white and red  
Carrots  
Cauliflower  
Celery  
Horseradish  
Mushrooms  
Potatoes, seed and ware
- Cut flowers  
Nursery stock

## 2) FISHERY PRODUCTS

a) *Salt-water fish, fresh and frozen.*

Cod and haddocks  
Cod fillet  
Eels  
Herrings  
Mackerel  
Plaice  
Salmon and sea trout

b) *Fresh-water fish, fresh and frozen:*

Trout, fresh and frozen

Fish roe

c) *Fish, cured, smoked or salted:*

Cod, dried and wet-salted  
Eels, smoked  
Herrings, salted, pickled or smoked  
Mackerel, smoked

Shell fish

## 3) PRESERVED FOODSTUFFS

a) *Meat, tinned:*

Brawn  
Corned beef  
Hams  
Jellied pork  
Jellied veal  
Liver paste  
Lunch tongues  
Meat extract  
Poultry  
Sausages

b) *Dairy products, tinned:*

Cheese  
Cream

Milk, condensed, sterilized and evaporated (whole and skimmed milk, sweetened and unsweetened)  
Milkpowder

c) *Fish, tinned:*

Fish balls  
Halibut  
Mackerel in oil or tomato  
Sardines (brisling) in oil or tomato  
Shrimps  
Tunny in oil

Anchovies  
Herrings "Appetit"  
Herring fillet, spiced

Tinned fruit  
Tinned vegetables

4) OTHER PREPARED FOODSTUFFS, BEVERAGES ETC.

a) *Biscuits:*

Crisp-bread and ship's biscuits  
Oats, rolled

Chocolate and confectionery

Coffee (transit)  
Groceries (transit)  
Mustard, ground  
Soup extract

b) *Beverages etc.:*

Beer (Lager, Pilsner and stout)

Aquavitae  
Cherry Brandy  
Liqueurs  
Mineral water

## 5) OILS, FATS AND FEEDING STUFFS

a) *Oils and fats:*

Vegetable oils:

Oils and fats, edible

Oils and fats, technical

Cocoa butter substitutes

Glycerine

Ghee, vegetable

Lecithin, vegetable

Animal and marine oils:

Oils and fats, edible

Oils and fats, technical

Whale, fish and seal oils, crude

Mineral oils:

Bunker oils

Lubricating oils

b) *Feeding Stuffs:*

Beef cakes for feeding purposes

Fodder meal (incl. meat and bone meal, blood and fish meal)

Fodder mixtures

Mineral fodder (incl. oyster and other shells)

Soya cakes and soya meal

Oil cakes and oil meal, other

## 6) TEXTILES

Blankets, wool

Carpets and rugs

Curtain fabrics and curtain nets

Furniture fabrics

Handwoven fabrics

Knitted goods

Embroideries

Lace

Woollen yarn, knitting



Binder twine  
 Cordage  
 Fishing nets  
 Twine

## 7) WOOD AND WOODEN WARES

Beechwood blocks  
 Boot and shoe lasts and heels  
 Clothes pegs  
 Furniture  
 Handles for tools  
 Ice-cream spoons and sticks  
 Labels  
 Last blocks  
 Plywood  
 Plywood packing cases  
 Staves for butter casks  
 Wood blocks, flooring  
 Wood flour  
 Wood, round and sawn  
 Telegraph poles, masts, sleepers, impregnated

Brushes and brooms  
 Frames and mouldings  
 Gymnastic apparatus  
 Toys  
 Wooden wares, turned

Cork floorings  
 Peat-moss

## 8) LEATHER AND LEATHER GOODS

Leather, chrome tanned  
 Leather, glove  
 Leather, sheepskin  
 Suède calf

Transmission belting

## 9) MINERALS, PORCELAIN, GLASS ETC.

a) *Minerals and products thereof:*

Cement  
 Chalk (crude and ground)  
 Chalk, writing  
 Cryolite  
 Flint and flint pebbles  
 Grinding stones  
 Kaolin  
 Moler, crude  
 Moler bricks, etc.  
 Whiting

b) *Porcelain, etc.*

Ceramic, art  
 Household china and faience  
 Porcelain and stoneware, art  
  
 Technical porcelain (insulators, high-tension)

c) *Glassware:*

Glassware, art  
 Glassware, table and household

10) IRON AND METAL INDUSTRIES. PRODUCTS  
AND SERVICESa) *Engineering and contracting work:*

Construction of factories and plants  
 Construction of railways, roads, bridges and harbours  
 Concrete constructions  
 Iron and steel constructions

## Construction and installation of:

Air conditioning plants  
 Cement factories  
 Cod drying plants  
 Crushing and grinding plants  
 Dairies  
 Incinerators  
 Laundries

- Refrigerating and ice-making plants
- Silos
- Slaughterhouses and bacon factories
- Steam kitchens

b) *General mechanical engineering:*

Engines and power plants:

- Steam engines
- Steam turbines
- Water turbines

Diesel motors (stationary, railway and marine)

Semi-Diesel engines (stationary and marine)

Petroleum engines (stationary and marine)

Wind motors

Agricultural machinery and implements:

- Cultivators
- Field and garden implements
- Grain and seed cleaning machines
- Grinding mills
- Harrows
- Incubators
- Milking machines
- Ploughs and plough shares
- Potato and beet lifters
- Threshing machines

Dairy machinery and equipment:

- Complete dairies
- Cheese making machinery
- Churns
- Dairy machinery, general
- Milk transport cans
- Pasteurizers
- Separators
- Stassanizing plants

Machines and equipment for other food industries:

Machines and equipment for:

- Bacon factories and slaughterhouses

Bakeries  
Breweries and aerated water factories  
Chocolate factories  
Icecream factories  
Flour mills  
Lard refineries  
Margarine factories  
Milk condensing plants

Coffee mills  
Bottling plants

Refrigerating and ice-making machines  
Whipping and mixing machines

Sundry industrial machines:

Air compressors  
Concrete mixers  
Cranes  
Drilling machines  
Gears  
Grinding machines  
Laundry machinery  
Lubricating apparatus  
Machine tools  
Oil purifiers  
Presses  
Pumps  
Road making machinery  
Road rollers, steam and motor  
Shoe machinery  
Stone and ore-working machinery  
Ventilators  
Woodworking machinery

c) *Electrical Engineering:*

Dynamos  
Electromotors  
Generators  
Transformers

- Cables and wires
- Dry batteries
- Electrical household appliances
- Kitchen ranges
- Measuring instruments
- Radio sets and loud speakers
- Traffic signals
- Type melting apparatus

d) *Shipbuilding and marine engineering:*

- Steam and motor ships, passenger and cargo ships (including tank ships, fruit carriers and other specially constructed ships)

- Steam and motor ferries

- Trawlers and fishing vessels

- Auxiliary machinery

- Capstans, winches and windlasses

- Electric steering gear

- Radio equipment for ships

- Steel ropes

e) *Rolling stock, etc.:*

- Diesel locomotives

- Diesel railway cars

- Diesel tractors

- Railway cars and trucks

- Automobiles, bicycles and accessories:

- Motor cars

- Omnibuses and lorries

- Parts and accessories

- Trailers

- Bicycles

- Bicycle parts and accessories

f) *Stoves, boilers and heating plants:*

- Central heating boilers

Central heating radiators (steel plate and cast iron).  
 Oil burning systems  
 Petroleum cooking stoves  
 Steam boilers  
 Steam kitchen installations  
 Stoves and kitchen ranges

g) *Other manufactures of iron, steel and metals:*

Bearing alloys  
 Scrap iron  
 Scrap metals  
 Steel castings  
 Steel windows

Axes  
 Bolts, nuts and screws  
 Bottle capsules  
 Crown corks  
 Cutting tools  
 Duplicators  
 Enamelled household articles  
 Fittings for steam, water and gas  
 Hack saw blades  
 Horse and mule shoes  
 Horse shoe nails  
 Lamps and light fittings  
 Razor blades  
 Stainless steel articles  
 Wire, barbed

Automatic delivery machines  
 Automatic scales

Art bronzes  
 Electro-plated articles  
 Gold and silverware  
 Pewter ware, art

Nautical, surgical and optical instruments

Pianos and organs

## 11) PAPER, CARDBOARD, STATIONERY ETC.

Fountain pens and mechanical pencils  
Lead pencils, coloured pencils and crayons

## 12) SOAP AND PERFUMERY

Household soap  
Laundry soap  
Shaving soap  
Soap flakes and soap powder  
Textile soap  
Toilet soap  
Perfumery  
Pine-needle oil

## 13) RUBBER GOODS

Bicycle tyres and inner-tubes  
Mechanical rubber goods  
Surgical rubber goods

14) MEDICINES, CHEMICALS, CHEMICAL-  
TECHNICAL PRODUCTS ETC.a) *Medicines:*

Insulin  
Liver extract  
Organo-therapeutic preparations  
Sanocrysin  
Sera and vaccines  
Vitamin products

b) *Chemicals and chemical-technical products:*

Sodium silicofluoride  
Superphosphate  
  
Cheese rennet  
Cheese and butter colour  
Fish glue  
Ink, writing

Micro-organisms for industrial purposes

Printing ink

Wood preservatives

c) *Paints and enamels:*

Anti-corrosive and anti-fouling paints

Cement colours

Cellulose lacquers and finishes

Enamels

Marine paints

Paints, ready made and dry

Varnishes

d) *Asphalt and tar products:*

Asphalt products (asphalt emulsion and asphalt powder  
for road construction)

Roofing felt and roofing paper

Wood tar and road tar



# SPECIAL INFORMATION CONCERNING DANISH EXPORT COMMODITIES

## “DANISH FOREIGN OFFICE JOURNAL”.

For several years the Danish Ministry for Foreign Affairs has published a monthly periodical “Danish Foreign Office Journal”. Its principal object has been to write objectively for the benefit of interested circles abroad, to keep them informed of what Denmark is capable of doing as her share in the trade between nations. This object has been achieved through the medium of profusely illustrated articles describing specific Danish products or groups of kindred products, often on the background of economic or cultural conditions in Denmark. The Journal has been distributed abroad through the Danish legations and consulates.

Naturally, much of the matter in earlier issues is now obsolete; but in more recent issues it is still of considerable informative value. Many public libraries abroad preserve complete volumes of the Journal, and in any case they may be consulted at the legations and consulates. For the purpose of providing a convenient guide to their contents the following index has been drawn up, comprising all the volumes of the Danish Foreign Office Journal from the beginning of 1927 to the middle of 1937.

Danish Foreign Office Journal	1927	contains	No.	72—	83.
—	—	—	—	84—	95.
—	—	—	—	96—	107.
—	—	—	—	108—	119.
—	—	—	—	120—	131.
—	—	—	—	132—	143.
—	—	—	—	144—	155.
—	—	—	—	156—	167.
—	—	—	—	168—	179.
—	—	—	—	180—	191.
—	—	—	—	192—	196.

*The figure in thick type indicates the number of the issue in which the product is dealt with, the following figure the page.*

- Accumulators: **149** 102.  
 Adiantum: **177** 142.  
 Agricultural & dairy products,  
     canned: **147** 45—46, **195** 40—42.  
 Agricultural & horticultural plants:  
     **152** 133—139.  
 Agricultural Machinery: **138** 87—  
     94.  
 Agricultural seeds: **188** 99—108.  
 Air compressors: **149** 101—102.  
 Air-conditioning plants: **185** 70,  
     **195** 41.  
 Alloys: **154** 167—169.  
 Alsike, seed: **152** 139, **188** 101 &  
     107.  
 Aluminium utensils for dairies &  
     breweries: **102** 75—76.  
 Anchovies: **147** 53.  
 Animal oils: **120** 1—3, **167** 159—  
     163.  
 Anti-sterility vitamins: **165** 140.  
 Apparatus, melting: **154** 166—167.  
 Apparatus preventing short-circuit  
     fires: **153** 155—156.  
 Apples: **177** 138.  
 Applied art: **94** 122—125, **124**  
     69—71, **132** 1—13, **166** 143—  
     157.  
 Applied art, permanent exhibition:  
     **132** 1—13.  
 Art glass: **155** 179—180.  
 Art, permanent exhibition: **132**  
     1—2.  
 Artificial fertilizers: **191** 142.  
 Assembling machine, crown cork:  
     **144** 7.  
 Asphalt felt: **151** 124.  
 Asphalt spreaders: **156** 11.  
 Autoclaves, high-pressure: **165** 136  
     —137.  
 Automatic calling device: **161** 76.  
 Automatic milk-weighing scales:  
     **122** 35—37, **184** 53.  
 Automatic packing machines: **144**  
     4—6.  
 Automatic refrigerators: **114** 83.  
 Automatic slot machines: **99** 45.  
 Automatic traffic-counting appa-  
     ratus: **156** 6—7.  
 Automatic vendors: **124** 74—76.  
 Automobile light-regulator: **80** 94  
     —95.  
 Auxiliary machinery, motorship:  
     **148** 65—66, **189** 111—116.  
 Axes: **95** 137, **138** 90.  
 Bacon industry: **118** 125—131,  
     **131** 198—200.  
 Battery brooders: **178** 153.  
 Beans, canned: **177** 137.  
 Bearing compasses: **189** 22—23.  
 Beechwood chairs: **173** 83.  
 Beechwood footwear: **173** 81.  
 Beechwood packings: **173** 78.  
 Beechwood parquetry: **173** 79, **176**  
     129.  
 Beef extract: **195** 42.  
 Beer **80** 91, **105** 113, **115** 94.  
 Beet drills, cutters etc.: **138** 92.  
 Beet-root, seed: **152** 134—135, **188**  
     103 & 107.  
 Begonias: **177** 142.  
 Bicycle tyres: **191** 151.  
 Birdsfoot trefoil, seed: **188** 101.  
 Biscuits and bread, ships: **128**  
     154—155.  
 Blackboards: **175** 115.  
 Bladders, lard: **147** 54.  
 Blue cheese: **183** 41—43.  
 Boilers, central heating: **176** 130.  
 Boiler plant for breweries: **149**  
     97—98.  
 Bone meal, poultry: **178** 154—155.  
 Bookbindings: **166** 155—156.  
 Book covers: **132** 11.  
 Boot and shoe industry: **191** 150.  
 Boracic acid: **167** 168—169.  
 Bottle capsule stoppers: **144** 6—7.  
 Bottling and washing machines,  
     brewery: **75** 33 & 36.  
 Bottling and washing machines,  
     dairies: **185** 66—68.  
 Boulder flint: **187** 95—96.  
 Boxes, carton, chicks: **178** 154.  
 Box-washing machines, dairies:  
     **185** 67—68.  
 Bread and biscuits, ships: **128**  
     154—55.  
 Bread, rye crisp: **93** 109—110.

- Breeds of cattle: **112** 55—57, **143** 161—163.
- Breeding ponds, fish: **168** 14.
- Brewing industries in Denmark: **98** 25, **149** 97—100.
- Brewery machinery: **75** 33—38.
- Bricks, moler: **93** 114, **136** 67—70, **176** 127—128.
- Brisling, salted: **168** 18.
- Bronzes: **107** 143, **132** 4, **166** 148—149.
- Brooders: **178** 153.
- Brussels sprouts: **152** 140.
- Butter: **95** 129—130, **128** 150—151, **143** 165—166.
- Buttercasks: **122** 39, **173** 78.
- Butter colour: **122** 39, **183** 46.
- Butter wrapping machines: **144** 6.
- Cabbage: **177** 138.
- Cabinet incubators: **178** 151—152.
- Cable industry: **149** 86—89.
- Calling devices, automatic: **161** 76.
- Can washing machines: **184** 59.
- Cans, milk: **102** 76, **103** 93—94, **122** 35, **184** 59—60.
- Canned fish: **147** 52, **168** 19—20.
- Canned meats: **118** 137, **131** 196—198, **195** 40—42.
- Caps for milk bottles: **102** 82, **144** 6—7, **185** 68—69.
- Capstans: **148** 65, **149** 94, **189** 115.
- Capsules: **144** 7, **185** 68—69.
- Capsule stoppers for bottles: **102** 82, **144** 6—7.
- Capsuling machines: **144** 7, **185** 69.
- Carbon papers: **175** 118.
- Cardboard disk capsules: **144** 7.
- Cargo winches: **148** 65, **149** 94, **189** 113—114.
- Carnations: **177** 142.
- Carpets, machine & hand woven: **132** 12, **166** 152—154.
- Carriers, fruit: **161** 67—72.
- Carrots: **152** 189.
- Carrot, seed: **152** 134—135, **177** 138, **188** 102—107.
- Carton-boxes, chicks: **178** 154.
- Cartons for eggs: **144** 10.
- Carton machines: **117** 117, **144** 5—6.
- Carving tables: **148** 66.
- Casks, butter: **173** 78.
- Cattle & pig breeding: **92** 103.
- Cauliflower, seed: **152** 140, **177** 138, **188** 103 & 107.
- Cells, dry: **164** 120—122.
- Cell concrete: **136** 65—67.
- Cement: **79** 83, **136** 59—65, **149** 84—86, **151** 123—124, **176** 127.
- Cement asbestos: **105** 114.
- Cement machinery (mills and kilns): **136** 60—65, **149** 84—86, **187** 92—95.
- Cement concrete mixers: **84** 4—5, **156** 11.
- Cement tanksteamer: **105** 118.
- Central-heating boilers: **176** 130.
- Centrifugal cleaners: **184** 59.
- Centrifugal pumps: **184** 53.
- Ceramic: **94** 124, **110** 26—28, **132** 2—6 & 9—11, **155** 171—178 & 180—184, **166** 143—144.
- Cereals: **152** 138.
- Chairs, wood: **132** 8, **166** 150—151, **173** 83.
- Chalk, poultry feed: **178** 156.
- Chalk, for writing: **175** 116.
- Chart magnifiers: **189** 23.
- Cheese: **122** 42, **143** 168, **147** 49—50, **183** 39—43.
- Cheese colour: **183** 46.
- Cheese moulds: **184** 59.
- Cheese presses: **184** 59.
- Cheese stirrers, mechanical: **122** 38, **184** 59.
- Cheese strainers: **184** 59—60.
- Cheese vats: **184** 59.
- Chemical cleaning plant: **153** 147—150.
- Chemicals, poultry: **178** 154.
- China: **166** 144—145.
- China, for hospitals: **165** 132.
- Chocolate-making plants: **144** 1—4.
- Choke coils: **141** 136.
- Crushed flint: **187** 95—96.
- Churn and butter-workers: **102** 82, **103** 89—90, **122** 33—37, **184** 58—59.

- Cider and fruit wine: **91** 84—85, **105** 113.  
 Clay bricks, diatomaceous: **93** 114.  
 Clay, diatomaceous: **96** 4—5.  
 Cleaners, vacuum: **75** 39—40, **139** 108, **176** 133.  
 Cleaning machines, chemical: **153** 148—150.  
 Cleansing materials for dairies: **120** 6, **167** 169.  
 Clips, wooden: **173** 83.  
 Clogs and clog soles: **173** 81.  
 Clothes clips (pegs): **173** 82.  
 Clover, white: **152** 136—137.  
 Coal-fish, salted: **168** 18.  
 Cocksfoot grass seed: **152** 136 & **139**, **188** 100—101 & 106.  
 Cod-fillets: **169** 18, **183** 47.  
 Codfish, Faroe Islands': **168** 13—14, **196**—50.  
 Cod liver, salted: **168** 21.  
 Cod liver oil extracting plant: **117** 118.  
 Coffee machines: **165** 132.  
 Coils, tuning: **141** 136.  
 Coloroscope, the: **191** 155.  
 Colour & varnish industry: **92** 98.  
 Colours: **124** 76, **154** 159—166.  
 Compasses, liquid: **189** 122—123.  
 Composing machines: **183** 50.  
 Compressors, poultry slaughteries: **178** 150.  
 Compressors, air, portable: **149** 101—102.  
 Concrete carriers: **156** 11—12.  
 Concrete, cell: **136** 65—67.  
 Condensed milk: **128** 148—150, **147** 47—49.  
 Condensing plants, milk: **185** 65—66.  
 Conifers: **177** 143.  
 Conserves, fish: **147** 52—53.  
 Contact hardener, ice-cream: **185** 71—73.  
 Containers, cream: **184** 60.  
 Cookers: **165** 132.  
 Cooking apparatus, electrical: **148** 66.  
 Cooking pots, ships: **148** 66.  
 Coolers for dairies: **185** 70—71.  
 Cork flooring, etc.: **93** 113—114, **151** 127—128, **176** 129.  
 Corned beef, canned: **195** 41.  
 Cosmetics: **167** 166—169.  
 "Cosy stoves" for English fireplaces: **117** 116.  
 Cranes: **140** 124, **148** 65, **149** 94, **189** 115.  
 Cream (foodstuff): **147** 47—48.  
 Cream (shaving and skin): **167** 167.  
 Cream, machinery and containers for making: **103** 88—99, **122** 38, **144** 3—4, **184** 58.  
 Crisp bread, rye: **93** 109—110.  
 Crown corks: **144** 7, **185** 69.  
 Crown corking machine: **144** 7.  
 Crude oil engines, marine: **169** 22.  
 Cryolite: **187** 87—91.  
 Cucumbers: **177** 136.  
 Culinary vegetables, seeds: **188** 103 & 107.  
 Cultivators: **138** 90.  
 Cuprinol (for dry rot.): **151** 126—127.  
 Curve rules: **175** 118.  
 Cut flowers: **177** 140.  
 Cutlery, for hospitals: **165** 132.  
 Cyclamen: **177** 142.  
 Cycle lamp: **92** 101—102.  
 Cycles, track: **159** 40.  
 Dahlia (tubers): **177** 142.  
 Dairy auxiliaries: **103** 87—95, **184** 52—60.  
 Dairy cattle, Danish: **143** 161—163.  
 Dairy cleansing materials: **167** 169.  
 Dairy machinery & implements: **103** 87—95, **122** 32—39, **127** 134—142, **184** 52—60, **185** 63—73.  
 Dairy preparations: **183** 44—46.  
 Dairy products: **79** 89, **95** 129—130, **122** 41—42, **147** 45—50.  
 Dairy refrigerating plants: **185** 70—71.  
 Danapin preparations (soap, etc.): **120** 5, **142** 155—157, **167** 168.  
 Decamin dragees, liver oil: **165** 141.

- Deck-cranes: **148** 65, **189** 115.  
 Deflectors: **189** 23.  
 Denmark, Handbook: **187** 98.  
 Demoulding plants, chocolate: **144** 1—2.  
 Destructors, refuse: **144** 8—9, **149** 95—97, **184** 62, **186** 80—85, **191** 154.  
 Diatomaceous clay and bricks: **93** 114, **96** 4—5.  
 Diesel engines, marine: **93** 110—111, **105** 118—119, **149** 70—73, **161** 63—67, **169** 22—26.  
 Diesel engines for railways: **102** 83, **106** 130—132, **114** 83, **149** 70—73 & 75—78, **159** 33—36, **182** 38.  
 Diesel motor, ships: **93** 110—111, **105** 118—119, **149** 70—71, **161** 63—67, **191** 153.  
 Diet supplements, for poultry: **178** 154—155.  
 Direction finder, portable: **161** 77.  
 Dish washing machines: **124** 73.  
 Disinfection apparatus for hospitals: **153** 152—153, **165** 136—137.  
 Disk-plough: **138** 88.  
 Down & feathers: **191** 151.  
 Drawing articles (celluloid): **175** 118.  
 Dredging works: **137** 79—83.  
 Drills, sowing: **138** 92—93.  
 Drinking troughs, poultry: **178** 154.  
 Driving-belt: **191** 154.  
 Drums, revolving for transport of wet concrete: **117** 117.  
 Dry cells & batteries: **141** 135, **164** 120—122.  
 Drying plants, lucerne: **178** 156, **192** 6—7.  
 Drying stoves, matrix: **154** 167.  
 Dryers, for laundry: **176** 132.  
 Duplicators: **117** 118, **175** 119.  
 Dynamos: **148** 65, **149** 94.  
 Dynamo cycle lamp: **92** 101—102.  
 Early red clover, seed: **188** 102.  
 Ecortan: **165** 140.  
 Eggs: **89** 61—62, **129** 163—166.  
 Egg carton: **144** 10.  
 Egg lamps, for candling: **178** 154.  
 Egg scales, poultry: **178** 154.  
 Electrical science & industry: **139** 103—111, **141** 133—139.  
 Electric cooking apparatus: **148** 66.  
 Electric fans: **148** 63.  
 Electric heating apparatus: **148** 66.  
 Electric household articles: **139** 108—110.  
 Electric lifts: **148** 65, **149** 94.  
 Electric melting apparatus for type setting machines: **113** 65—67, **154** 166—167.  
 Electric railcars: **159** 33—36.  
 Electric ship machinery: **149** 94, **189** 113—116.  
 Electric traffic lights: **156** 7—8.  
 Electromotors: **139** 104—106, **148** 65, **178** 152.  
 Emulsion concrete makers: **156** 11.  
 Elevator, grain: **137** 82.  
 Embroidery: **166** 152—154.  
 Enamels: **165** 137, **176** 129.  
 Engines for fishing craft: **169** 22—28.  
 Engine bogie: **159** 35.  
 Engine-room telegraphs: **148** 65, **149** 94.  
 Engineering activities abroad (Danish): **95** 132—133, **99** 42—45, **104** 103, **115** 87—93, **137** 73—83, **159** 37—40, **197**—62.  
 Equipment for kitchens: **148** 66.  
 Equipment for milk-supply stations: **185** 65—70.  
 Equipment for poultry breeding: **178** 151—154.  
 Erasers: **175** 118.  
 Eternit, cement-asbestos: **105** 114.  
 Evaporated milk: **147** 47—48.  
 Expansion freezer, ice-cream: **185** 71—73.  
 Export directory of Denmark: **84** 8, **181** 25, **195** 43.  
 Faience: **78** 74, **155** 173—174.  
 Fans for ventilation: **148** 63, **176** 131.

- Fat content of milk, measuring apparatus: **103** 94.  
 Fat extracting and refining machinery: **147** 53—54, **149** 101—102.  
 Feather works: **191** 151.  
 Feeding troughs, poultry: **178** 154.  
 Felt, tarred & tar-free: **151** 124, **176** 128.  
 Ferro-concrete: **159** 37—40.  
 Ferrosan: **165** 141.  
 Fermenting vats, brewery: **75** 37.  
 Fertilan: **165** 140.  
 Fertilizers, artificial: **191** 142.  
 Field-brome grass: **152** 139.  
 Filling machines (dairies): **185** 66—68.  
 Filleted fish: **168** 18, **183** 47.  
 Fire extinguishers: **148** 64—65.  
 Fish, canned: **125** 92, **147** 52—53, **168** 19.  
 Fish fillets: **168** 18, **183** 47.  
 Fish glue: **117** 118, **175** 118.  
 Fish meal, poultry: **168** 20, **178** 155.  
 Fisheries in Denmark: **76** 49—50, **119** 147—148, **125** 79—81, **168** 1—15.  
 Fishing boats, motors: **114** 83—84, **125** 88—91, **169** 22—28.  
 Fishing tackle: **125** 81—85 & 92—93, **168** 3.  
 Fishing vessels: **119** 146, **125** 86—87, **161** 73—76, **168** 1—4.  
 Flat splits, wooden: **173** 82.  
 Flint pebbles for milling and mining: **96** 1—3, **187** 95—96.  
 Flooring materials: **151** 127—128, **173** 79, **176** 129.  
 Flowers: **177** 140—144.  
 Foam extinguishers: **148** 64—65.  
 Fodder drying & milling: **192** 6—7.  
 Fodder beet, seed: **152** 135, **188** 102—103 & 106.  
 Foodstuffs, packings of plywood: **144** 10.  
 Foliage, cut: **177** 142.  
 Folliculin preparations: **165** 141.  
 Footwear, rubber: **94** 119—120, **191** 151.  
 Footwear, wooden: **173** 81.  
 Forest tree plants: **177** 143.  
 Forks, beet: **138** 89.  
 Formalin stoves: **165** 136.  
 Fountain pens: **175** 118.  
 Freezer, expansion, ice-cream: **185** 71—73.  
 Fried fish: **168** 19.  
 Fruit-carriers: **161** 67—72.  
 Fruit trees: **177** 143.  
 Fruit tree sprayers: **138** 93.  
 Furniture: **132** 8 & 10, **166** 150—152, **173** 84.  
 "Gaffelbidder": **168** 21.  
 Galley ranges: **148** 66.  
 Garden produce: **177** 135.  
 Garden seed: **116** 105, **152** 140, **177** 138, **188** 103 & 107.  
 Gear, steering: **189** 115—116.  
 Generators: **149** 94.  
 Glass industry, applied art: **78** 74, **94** 124, **124** 69—71, **132** 7 & 10, **155** 179—180, **166** 154—155.  
 Gold salt sancocrysin: **165** 141.  
 Grain silo and elevator: **137** 82, **191** 155.  
 Grasses, seed: **116** 101, **152** 139, **188** 100—101 & 106.  
 Graphic arts: **166** 155.  
 Greenland applied art: **132** 3.  
 Grinding systems for hard materials: **75** 40—41, **187** 92—95.  
 Gritting machines for roads: **156** 12.  
 Gymnastic apparatus **94** 120—121, **134** 36, **175** 112—114.  
 Haddock fisheries: **168** 7.  
 Halibut, tinned: **147** 53.  
 Halibut liver oil: **165** 141.  
 Hamburger smoked backs: **195** 41.  
 Hams, tinned: **128** 155, **147** 50—52, **195** 41.  
 Hardener, ice-cream: **185** 71—73.  
 Harrows: **138** 92—93.  
 Hay blower: **138** 88.  
 Hay forks: **138** 90.

- Heating plants for churches: **191** 155.
- Heating plants for ships: **148** 63—64.
- Hepsol: **165** 140.
- Herbage legumes: **188** 101—102 & 106.
- Herring, salted or otherwise prepared: **147** 53, **168** 18.
- High tension, porcelain insulators: **139** 107, **149** 89—91.
- Hoes, beet: **138** 89.
- Homogenising machines: **103** 94, **185** 65—66.
- Hormone preparations: **165** 140—142.
- Horse hoes and rakes: **138** 88.
- Horticultural seeds: **116** 105, **152** 140, **177** 138, **188** 103 & 107.
- Hospital accessories: **165** 130—137.
- Hydraulic plant: **149** 101—102.
- Ice-cream cans: **122** 35, **184** 60.
- Ice cream-making plants: **122** 37, **185** 71—73.
- Ice-cream splits and spoons: **173** 82.
- Ice-cream sticks, machinery for: **185** 71—73.
- Impregnated wood poles: **173** 84.
- Incinerators: **144** 8—9, **149** 95—97, **184** 62, **186** 80—85, **191** 154.
- Incubators: **178** 151—152.
- Industries in Denmark: **191** 137—155.
- Inks: **175** 118.
- Instruments for navigation: **189** 122—23.
- Insulating materials (building): **136** 65—70, **139** 107—108, **151** 124 & 127—128, **176** 128—129.
- Insulators (porcelain): **139** 107, **149** 89—91, **164** 116.
- Insulin: **165** 139.
- Iron organotherapeutical preparations: **165** 141—142.
- Ironing machines: **176** 132.
- Italian rye-grass, seed: **188** 101 & 106.
- Jellied pork and veal, canned: **195** 41.
- Kilns, cement: **136** 60—65.
- Kitchen equipment: **124** 72—73, **148** 66, **165** 130—131, **176** 132.
- Kitchen plants for hospitals etc.: **153** 152—153, **165** 131.
- Kneading machines: **124** 72—73.
- Lacquers: **154** 159—166.
- Lamps, candling of eggs: **178** 154.
- Lamps, electric: **94** 125, **124** 76, **132** 8—9, **139** 108 & 111, **166** 154, **176** 133, **179** 166—169.
- Lard: **118** 136—137, **147** 53—54.
- Lasts and last blocks: **173** 81.
- Laundry machinery: **89** 63, **95** 135, **153** 147—150, **165** 134, **176** 132.
- Lecitines: **167** 163.
- Levels, precision, spirit: **176** 133.
- Lifeboats: **125** 93.
- Lifters, sugar-beet: **138** 89.
- Lifts, electric: **139** 104, **148** 65, **149** 94.
- Light-regulator, for automobiles: **80** 94—95.
- Lighting accessories: **132** 8—9, **139** 108 & 111, **166** 154, **176** 133, **179** 166—169.
- Lime, poultry feed: **178** 156.
- Liqueurs: **98** 33—34.
- Liquid compasses: **189** 122—23.
- Liquid spreader, (manure): **138** 90—94.
- Liver extract preparations: **165** 140—141.
- Livestock breeding: **112** 51—52.
- Locomotives: **106** 130—132, **149** 73—75, **159** 33—36.
- Lorries: **156** 1—3.
- Lucerne meal, machines: **178** 156, **192** 6—7.
- Lucerne meal, for poultry: **178** 156.
- Lump-fish roe: **168** 18.
- Lucerne, seed: **188** 101.

- Mackerel, salted: **168** 18.  
 Malt and malt barley: **93** 106—  
 108, **107** 135—136, **119** 149—150.  
 Mangels, seed: **152** 138, **188** 102—  
 103 & 106.  
 Mangles, machine: **165** 136.  
 Manure spreader: **138** 88—94.  
 Margarine: **80** 93, **92** 96—97, **105**  
 114, **167** 164—166.  
 Margarine making plants: **128** 151  
 —154, **149** 101—102, **167** 164—  
 166.  
 Marine auxiliary machinery: **189**  
 111—116.  
 Marine engines: **93** 110—111, **105**  
 118—119, **106** 131—132, **149**  
 70—73 & 101—102, **161** 63—72,  
**169** 22—26.  
 Marine paints: **154** 163—164.  
 Marine refrigerating machinery:  
**148** 59—61, **189** 117—120.  
 Marking rings for poultry: **178**  
 154.  
 Mash boilers: **138** 94.  
 Matrix drying stoves: **154** 167.  
 Meadow fescue, seed: **152** 139, **188**  
 101 & 106.  
 Meadow-grass, seed: **188** 101 &  
 106.  
 Meat, canned: **131** 196—198, **195**  
 40—42.  
 Meat chopping machines: **124** 72.  
 Meat meal, poultry: **178** 154—155.  
 Meat pastes: **195** 42.  
 Medicinal preparations: **142** 154—  
 155, **165** 140—142.  
 Melting apparatus for type setting  
 machines: **113** 65—67, **154** 166  
 —167.  
 Milk bottling machines: **144** 7, **185**  
 66—67.  
 Milk cans: **102** 76, **103** 93—94, **122**  
 35, **184** 59—60.  
 Milk, condensed and powdered:  
**122** 42, **128** 150—151, **147** 47—  
 49.  
 Milk condensing and desiccating  
 plants: **185** 65—66.  
 Milk pumps: **122** 34, **184** 53—54.  
 Milk separators: **122** 32—33, **184** 58.  
 Milk-supply stations, equipment:  
**185** 65—70.  
 Milk-weighing scales, automatic:  
**122** 35—37, **184** 53.  
 Mills (wind): **138** 88—92—93—94.  
 Minced fish (Fiskefars): **147** 53,  
**168** 19.  
 Mixed feeds, poultry: **178** 154.  
 Mixers for cement: **156** 11.  
 Mixing machines (kitchen): **124**  
 72—73.  
 Moler bricks & slabs: **136** 67—70,  
**151** 124, **176** 129.  
 Mussel shells, poultry feed: **178**  
 156.  
 Mustard seed: **188** 107.  
 Motorcars: **94** 125—126, **104** 108,  
**156** 1—5, **159** 40.  
 Motors for fishing vessels: **168**  
 22—28.  
 Motor tankers: **161** 67—72.  
 Motor trawlers: **105** 118—119, **125**  
 91, **161** 73—76.  
 Mushrooms: **177** 138.  
 Navigation instruments: **189** 122  
 —123.  
 Nitrocellulose colours & enamels:  
**154** 137 & 160.  
 Nursery garden plants: **152** 133—  
 139, **177** 140—144.  
 Oil separators: **148** 61, **189** 120—  
 122.  
 Oils, vegetable & animal: **120** 1—3,  
**167** 159—163.  
 Omnibuses: **156** 1—3.  
 Onions: **177** 137.  
 Organo-therapeutic preparations:  
**120** 6—8, **165** 140—142.  
 Ovens, ships: **148** 66.  
 Oyster shells, poultry feed: **178**  
 156.  
 Oysters, Limfjord: **93** 111—112.  
 Packing machines, automatic: **117**  
 117, **144** 4—6.



- Packings, plywood: **144** 10, **173** 78.  
 Pails, milking: **184** 60.  
 Paints (& enamels): **154** 159—166, **165** 137, **176** 129.  
 Paper bags for cement: **108** 4.  
 Parquet floors, cork: **93** 113—114, **151** 127—128, **176** 129.  
 Paste, (for photo & office): **175** 118.  
 Pasteurising apparatus, dairy: **103** 88—91, **122** 34—37, **184** 55—57.  
 Pasteurising machinery, brewery: **75** 34—35.  
 Pegs, clothes: **173** 82.  
 Pencils: **107** 141—142, **124** 76, **175** 116.  
 Perfumes: **167** 167.  
 Perennial rye grass, seed: **188** 101 & 106.  
 Pewter: **94** 124, **166** 148.  
 \*Pig breeding and slaughtering: **79** 89, **92** 103, **118** 125—131.  
 Pig tongues, canned: **195** 41.  
 Pills, liver oil: **165** 141.  
 Pine-oil cosmetics: **120** 5, **142** 155—157, **167** 168.  
 Piston pumps, dairies: **122** 34, **184** 53—54.  
 Plate pasteuriser: **122** 36—37, **184** 56.  
 Ploughs: **138** 90—91.  
 Plywood packings, beech: **144** 10, **173** 78.  
 Poles, wood, impregnated: **173** 84.  
 Porcelain: **78** 69—75, **88** 50—52, **94** 122—123, **104** 99—103, **132** 4—6, **139** 107, **155** 171—178, **165** 132—133, **166** 144—145, **171** 58, **174** 94—95.  
 Porcelain insulators: **139** 107, **149** 89—91, **164** 116.  
 Potatoes: **177** 137.  
 Potato drills etc.: **89** 63, **138** 92—93.  
 Poultry breeders' equipment: **178** 151—154.  
 Poultry diseases, chemicals for: **178** 154.  
 Poultry feed: **178** 154—156.  
 Poultry, slaughtered: **178** 149.  
 Poultry slaughtery plants: **178** 150.  
 Preheaters, dairies: **184** 55—57.  
 Presses, for hay and straw: **138** 94.  
 Presses, for cheese making: **184** 59.  
 Pricking machines, for cheese making: **184** 59.  
 Pumps, milk and others: **103** 94, **149** 102, **184** 53—54.  
 Pure Lard: **147** 53—54.  
 Radiators: **151** 125—126, **176** 130—31.  
 Radio, installations and accessories: **105** 115, **141** 133—139, **161** 76—80, **164** 111—116.  
 Radish, seed: **152** 140, **177** 138, **188** 103 & 107.  
 Railcars: **95** 133, **149** 73—75, **159** 33—36.  
 Ranges: **148** 66, **165** 130, **176** 131.  
 Raw last blocks: **173** 81.  
 Red cabbage: **177** 138.  
 Red cabbage, seed: **152** 139, **188** 103 & 107.  
 Red clover, seed: **152** 136 & 139, **188** 101 & 107.  
 Refrigerators for domestic use: **115** 95—96, **165** 132, **176** 133.  
 Refrigerating plants (for dairies and slaughteries): **122** 38—39, **149** 101, **178** 150, **185** 70—71, **191** 155.  
 Refrigerating plants (marine): **149** 101, **187** 98, **189** 117—120, **191** 154.  
 Refuse destructors: **144** 8—9, **149** 95—97, **184** 62, **186** 80—85, **191** 154.  
 Rennet: **122** 39, **183** 44—46.  
 Road-making machines: **156** 11—14.  
 Roofing materials: **151** 124, **176** 128.  
 Root-crop seeds: **152** 138—139, **188** 102—103 & 106.  
 Roses: **152** 142—143, **177** 142.  
 Rubber footwear: **94** 119—120, **191** 151.  
 Rules, clear celluloid: **175** 118.  
 Rust-proof paints: **154** 166, **176** 130.  
 Rye crisp bread: **93** 109—110.

Rye-grass, seed: **152** 138—139 & 141, **188** 101 & 106.

Sanitary porcelain: **176** 133.

Sanocrysin: **165** 141.

Sardines, oil or tomato: **147** 53.

Sausages: **147** 50—52, **195** 41.

Sawblades: **173** 83.

Scalding apparatus, for poultry slaughtering: **178** 150.

Scales, milk: **184** 53.

School materials etc.: **175** 114—119.

“Sea-salmon”, canned: **168** 18.

Seal blubber, and skins: **168** 21.

Seeds: **81** 109, **100** 57—58, **116** 99—101, **152** 131—133, **188** 99—109.

Seedlings (forest trees): **177** 143.

Seed sorting machines: **138** 94, 97.

Seines: **168** 4—5.

Separators for milk and cream: **122** 32—33, **184** 54—55.

Separators for oils: **148** 61, **189** 120—22.

Serum: **142** 147—150, **165** 138.

Set-squares: **175** 118.

Sextants: **189** 23.

Shark products: **168** 21.

Shaving cream: **167** 167.

Shells, poultry feed: **178** 156.

Ships' engines, see Marine engines.

Ships' kitchen appliances: **148** 66.

Ship machinery, electric: **90** 76—79, **149** 94, **189** 111—116.

Ships' radio: **90** 81, **141** 135—138, **161** 76—80.

Ship refrigerating: **90** 79—80, **187** 98, **191** 154.

Ship ropes & hawsers: **90** 80—81.

Ship telegraphs (engine room): **148** 65, **149** 94, **189** 116.

Ship ventilation & heating: **148** 63—64.

Shoe-last, wooden: **173** 81.

Short-circuit fire, prevention of: **153** 155—156.

Silverware: **94** 124, **102** 80—81, **132** 5—7 & 10—12, **166** 146—148, **174** 92—95, **179** 159—165.

Skim-milk powder machines: **185** 65—66.

Slot machines, automatic: **99** 45, **124** 74—76.

Soap flakes: **120** 5—6, **167** 167—169.

Soap powder: **165** 134.

Soaps: **120** 3—6, **167** 166—169.

Soda, washing: **167** 168—169.

Sounding machines & instruments: **189** 122—123.

Sowing machines: **138** 92—93.

Soyacakes: **167** 163.

Spinach, seed: **152** 140, **177** 138, **188** 103 & 107.

Spirit levels, precision: **176** 133.

Spirits and yeast: **91** 83—84, **105** 113, **115** 93—94, **128** 145—147.

Splits, and spoons, for ice-cream: **173** 82.

Spring barley and oats: **152** 138.

Starters, dairy: **183** 46, **184** 58.

Starters, motorships: **148** 65.

Stassanising apparatus: **103** 90—91, **122** 34—37, **184** 56.

Staves, butter-cask: **173** 78.

Steering machinery: **148** 65, **149** 94, **189** 115—116.

Stereotyping furnaces: **154** 167.

Sterilisation apparatus and plants: **153** 152—153, **165** 136—137.

Sticks (spatulas) for ice-cream: **173** 82.

Stirrers, cheese: **184** 59.

Stoneware: **78** 73—75, **132** 2—6, **9** & **11**, **155** 173—174, **180**—184, **166** 144—146, **191** 155.

Stoves, domestic: **75** 38—39, **117** 116.

Stoves, for brooders: **178** 153.

Stoves, formalin, for hospital: **165** 136.

Stoves, for matrix drying: **154** 167.

Straw presser: **138** 94.

Suede leather: **191** 150—151.

Sugar beets, seed: **152** 138, **188** 102—103 & 106.

Sugar-beet lifter: **138** 89.

Swedes, seed: **152** 138, **188** 102—103 & 106.

- Tankers, motor: **161** 67—72.  
 Tank-steamers for cement: **105** 118.  
 Tar boilers and spreaders: **156** 11—12.  
 Tar felt: **151** 124.  
 Technical soaps: **167** 169.  
 Telephones and telegraphs: **141** 134 & 142—144.  
 Telegraphs and telephones: **141** 133—134.  
 Textile soaps: **167** 169.  
 Thermostats, for brooders: **178** 152.  
 Threshers: **138** 88—92.  
 Tiles: **155** 174—175, **166** 145, **176** 128.  
 Timothy grass, seed: **152** 137, **188** 101 & 106.  
 Toilet soap: **167** 168.  
 Tomatoes: **177** 136.  
 Tongues, tinned: **147** 50—52, **195** 40—42.  
 Toothpaste: **167** 167.  
 Toys: **166** 156—157, **173** 85, **191** 155.  
 Track cycles: **159** 40.  
 Traffic-counting apparatus: **156** 6—7.  
 Traffic lights: **156** 7—8.  
 Trailers: **156** 6.  
 Transformers: **139** 104—106, **141** 136—137.  
 Trawlers: **105** 118—19, **148** 61, **161** 73—76.  
 Trout: **168** 14.  
 Tube spreaders, manure: **138** 93.  
 Tuning coils (radio): **141** 136.  
 Turbines, steam: **149** 101—102, **161** 63—72.  
 Turnips, seed: **152** 138—139, **188** 102—103 & 106.  
 Turnip topping machines: **138** 93.  
 Type metals: **154** 167—169, **183** 50.  
 Typesetting machine, melting apparatus for: **154** 166—167.  
 Vaccines: **142** 147—150, **165** 138.  
 Vacuum cleaners: **75** 39—40, **108** 8, **139** 108, **176** 133.  
 Varnish & colour industry: **92** 98, **124** 76, **154** 159—166.  
 Vats, brewery: **75** 37.  
 Vegetable oils: **120** 1—3, **167** 159—163.  
 Vegetables: **177** 135—140.  
 Ventilation plants: **148** 63—64, **176** 131.  
 Vitamin preparations: **165** 140—142.  
 Washing machines, see laundry machinery.  
 Washing machines, breweries: **75** 33 & 36.  
 Washing machines, dairies: **185** 66—68.  
 White cabbage, seed: **152** 140, **177** 138, **188** 103 & 107.  
 White cabbage, export: **177** 138.  
 White clover, seed: **152** 136—137, **188** 101 & 107.  
 Winches and windlasses: **148** 65, **149** 94, **189** 113—114.  
 Wire & cable: **149** 86—89.  
 Wind mills and motors: **138** 90—91.  
 Wiring & installation material: **139** 106.  
 Wood fibre slabs: **176** 128.  
 Wood heels: **173** 82.  
 Wood poles, impregnated: **173** 84.  
 Wood toys, modern Danish: **173** 85, **191** 155.  
 Wrapping machines, butter, etc.: **144** 6.  
 Writing chalk: **175** 116.  
 Yeast & spirits: **91** 83—84, **98** 31—32, **105** 113, **115** 93—94, **128** 145—47, **142** 150—54.  
 Yellow trefoil, seed: **188** 101 & 107.